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ORIGINAL COMMUNICATIONS.

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THE SURGICAL TREATMENT OF OTITIC FACIAL PARALYSIS.

BY PROF. GIUSEPPE GRADENIGO, TURIN, ITALY.

The facial palsies that are observed rather frequently in diseases of the organ of hearing are brought about either by the morbid process in the temporal bone, or by the surgeon, willingly or unwillingly, during operation. These paralyses are susceptible of complete or almost complete recovery when the trunk of the nerve is only damaged and has not been entirely divided, or in part removed or destroyed. In the latter case the palsy of the muscles innervated by the facial nerve persists during the individual's whole life, giving rise to a striking unæsthetic deformity and to much functional inconvenience. The otologist, rightly concerned in this fact, tries to remedy it, and has thought of attaching the peripheral stump of the facial close under the lesion, with the central stump of some other nerve, divided on purpose. The nerves which are more suitable for this case are the Glosso-pharyngeal and the Spinal accessory. Unfortunately, one cannot say that the results of such experiments have been, up to the present time, encouraging. The patient does not recover the use of the paralyzed muscles of the face and loses the use of the muscles innervated by the nerve artificially divided. Evidently in this case the principal problems to resolve are two: to see if, with time, the functional continuity of the nervous fibres of the two sutured nerves settles itself; and, if this happens, to see if the different nature of the nerves is no obstacle to the correct function of the muscles supplied. In the case that I now record, and which constitutes a true experiment made in man, the problem put was more simple. We sutured

straightway and immediately after the accident the two stumps of the same nerve trunk, the cut facial; and the question to settle was if the palsy diminished or disappeared.

A peasant, aged 36, was admitted to my clinic in Turin, with acute mastoiditis on the left side. The mastoid operation, performed by a colleague on the first of April, 1905, showed that the pneumatic structure of the apophysis and the bone-cells contained abundant pus and granulations. Whilst finishing the operation, and demolishing with a gouge the little bone-cells, placed behind the posterior wall of the auditory canal, a movement of the gouge cut off entirely and almost transversely the facial nerve, about the middle of the vertical descending portion. It is worthy of notice that at the moment of the division the colleague, who was chloroforming and watching the face of the patient, did not notice any contraction of the facial muscles, and that neither the act of grasping and pressing, with a pair of pinchers, the peripheral stump, provoked contractions, so that at first one doubted that the cord cut was really the facial. Also the tonus of the muscles of the face during the chloroform narcosis did not permit of recognizing with certainty any want of symmetry on the two sides of the face. Only the corner of the mouth on the left side appeared a little lower than on the right; moreover, during the narcosis, the palpebral reflex was absent only on the left side. The trunk of the nerve was carefully isolated from the bone, for about 1 centimeter, and the division had happened at about the middle of the space thus exposed. At the end of the operation, the operator proceeded immediately to reunite the two stumps of the divided nerve, running them through with a very fine needle and silk, at some millimetres from the free extremities, and bringing the two divided ends together. The sutured nerve was then wrapped in a little cushion of gauze, independent of the gauze which filled up the large wound. The successive dressings were carried out with great care, to avoid any sort of compression or stretching of the nerve, and to prevent any collection of pus. They were renewed twice a day. One could so recognize that the suture was well preserved, and that the suppuration was scanty. On the 8th of April the stitch was spontaneously eliminated, and very soon the nerve remained surrounded by granulation tissue.

When the patient awoke from the narcosis we immediately noticed the complete facial paralysis on the left side; the upper eyelid drooped so as to cover half the palpebral opening. When at rest the face did not appear very wanting in symmetry.

At first the electric examination showed a disappearance of the faradic reaction of the nerve and the muscles, and the presence of the galvanic reaction of the muscles, but not of the nerve. Afterwards every reaction disappeared. In the meantime, complete healing of the otitis and mastoiditis took place. For a long time, but without result, we used galvanism and massage. On the 19th of July, when last examined, almost four months after the operation, we could not observe any signs of the reappearance of the function of the left facial nerve. The patient is still under observation.

The result of the suture of the facial nerve, performed immediately after the division, has until now remained negative. It is important to remark that the cut nerve was lodged in a suppurating cavity. The possibility of mobility returning later on should not be excluded.

8 Corso Regina Margherita, 8.

Mastoid Operations under Scopolamin-Morphin Anaesthesia.—

S. STEIN—*Hosp. Tid.*, Copenhagen, p. 1965, 1905.

Stein has used this anaesthetic in six cases, in two of which he succeeded in getting a complete ideal narcosis. In one case of a boy aged fifteen years, who received altogether only 2.5 m. g. of Scopolamin and 2.5 c. g. of Morphin, a very dangerous asphyxia interfered with the operation, which was not performed until two days later, and then under ether alone. However, there were symptoms of asphyxia with the ether anaesthesia also, though less marked. In the other three cases the Scopolamin and Morphin had to be supplemented by a small quantity of ether.

KIAER.

THE DIRECT METHOD OF CORRECTING LATERAL DEFORMITY OF THE NASAL BONES.*

BY HARRIS PEYTON MOSHER, M. D., BOSTON.

Drawings by the writer.

In correcting old fractures of the nasal bones, the customary method has been to pass a short, stout-bladed saw into the nose up under the nasal bone of one side, and to saw outward until it was divided. This was done on the opposite nasal bone, and then the nasal bones were driven into the median line by a blow from a mallet. The corrected position of the nasal bones was maintained until union was well advanced by placing packing in the nose snugly beneath the bones or by a double finger splint from the forehead placed on the outside of the nasal bones. Often both splint and packing were used together.

At times this method will give good results, but as a routine procedure it is disappointing. There are several reasons for this. In the first place, the operator works back handed, from within outward, not, as in all other surgical manipulations, from without inward directly upon the part. Further, it is hard to tell just where the saw is, and the saw frequently slips from its groove, so that it is difficult to saw the whole length of the nasal bone completely through. If the deformity requires that the cut be made well out on the ascending process of the superior maxilla, I have seen the attempt to force the saw through this fail repeatedly. The intranasal operation generally ends with the feeling that the bones are not as free as you would like to have them. The greatest drawback of all to this method, however, is the fact that it leaves out of account the correction of the deformity of the ascending process of the superior maxilla. In a marked case of old fracture of the nasal bones it is absolutely essential to deal with this.

In the last six months I have operated on six cases of old fractures of the nasal bones by the direct or the external method. The first case resulted in moderate improvement. This case previously had been operated on by the internal method. Of the other five cases, the results of three were fair to good and of two excellent. In these old fractures, the conditions both inside the nose and outside are often so complicated that perfect correction is obtained

* Read at the Massachusetts General Hospital before the New England Laryngological and Otological Society.

only rarely. My results, I feel, justify the method which I used. I am positive that after one has tried the internal method and has been disappointed with it he will find the ease, simplicity and directness of the external method very gratifying.

The method is as follows: An incision an eighth of an inch long is made in the skin over the lower outer angle of the nasal bone. A chisel to fit the incision is placed in it and then driven through the bone with a mallet. The chisel is then pushed up, carrying the skin before it, and again driven through the outer border of the nasal bone. When this has been done the third or the fourth time the top of the nasal bone is reached. The chisel is then turned



Fig. I.

Method of fracturing nasal bone with mallet.

horizontally so that it is parallel with the teeth and at right angles with the incision through the outer border of the nasal bone and driven inward through the root of the nasal bone. The operator is able to accomplish this extensive chiseling of the bone through the one small skin incision because the skin over the nasal bone, as one can readily test on himself, is displaced upward very readily. It can be displaced downward but little. The same procedure is repeated on the other nasal bone. The horizontal incision through the root of the nasal bone should be especially thorough, otherwise the nasal bones will not be freed sufficiently to give good results. This is a point where the internal method is especially inadequate.

MOSHER: LATERAL DEFORMITY OF THE NASAL BONES.

The mallet is depended upon to fracture the root of the nasal bone. The line of the fracture which this gives is not definite and often not free enough. Both of these objections can be done away with by a thorough use of the chisel in the external method. When the nasal bones are sufficiently cut through they are forced into the middle line by a pair of septum forceps or by the fingers. If they do not start readily the mallet may be used.

When the nasal bones have been replaced in the middle line, it will be found in a majority of cases that the ascending process of the superior maxilla on the side toward which the bones originally

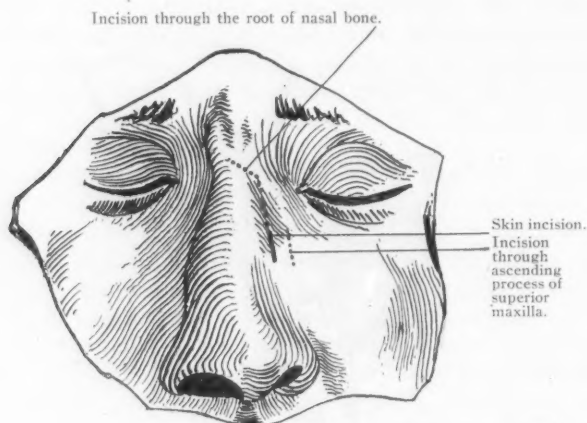


Fig. II.

Dark line—skin incision. Dotted lines—bone incisions.

deviated is so prominent that it will cause a marked deformity if it is left in its present condition. The deformity which this causes is easily remedied by replacing the chisel in the skin incision, forcing the skin outward as far as is necessary, and then cutting off the projecting part of the ascending process with one or two cuts of the chisel. Occasionally the ascending process on the other side may require the same treatment. It is necessary to treat the ascending process on both sides when you have a wide nose and wish to narrow it.

In connection with the question of the deformity caused by the ascending process of the superior maxilla, I wish to review briefly

the pathology which is usually found in recent cases of marked fracture of the nasal bones. As a rule, the nasal bones are not driven directly backward and, as it were, into the face, but are forced to one side, making the chief deformity a lateral one. If the blow comes from the left, as it did in most of my cases, the left nasal bone is broken away from the ascending process of the superior maxilla, is disarticulated in the median line from the opposite nasal bone, and broken transversely at its root from its attachment to the frontal bone. That is, the bone that receives the blow is broken from all its attachments and depressed below them. Just the reverse happens to the other nasal bone; this is sprung out-

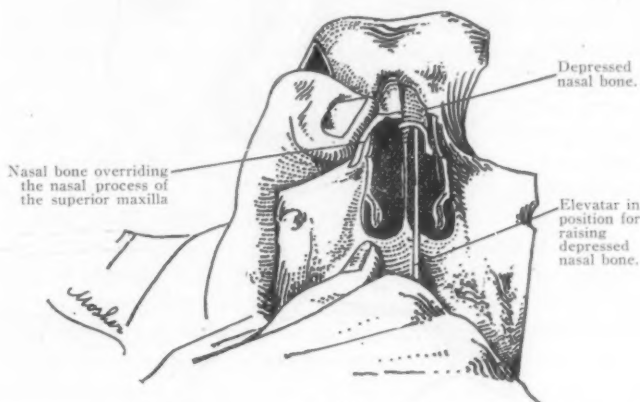


Fig. III.

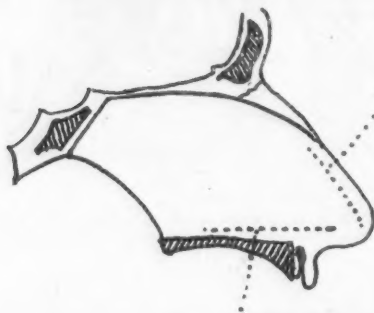
The usual deformity in severe fracture of the nasal bones. The thumb of the left hand is in position to press the right nasal bone toward the middle line when it is unlocked from the superior maxilla.

ward from its attachments and tends to override them rather than to be depressed below them. This bone is broken transversely from its attachment to the frontal bone, and it is broken from its attachment to the ascending process of the superior maxilla. The median border is freed from the septum beneath like its fellow of the opposite side; but, unlike the median border of the first bone, it is not depressed. The characteristic deformity of the second nasal bone is that its outer border overlaps the edge of the ascending process of the superior maxilla from which it is broken. In correcting a fresh fracture of the nasal bones, two things have to be borne in mind, to raise the first bone which is depressed and to un-

lock the second bone from the ascending process of the superior maxilla so that both bones can be replaced in their normal position. This is accomplished in the following manner: A flat elevator is placed in the nose well up under the depressed nasal bone; the



1



Incision along the
front border of the
cartilage.

2

Horizontal nasal incision.

Fig. IV

1. Deviation of the cartilaginous part of the bridge to the left.
2. Incisions through the septum for the correction of the lateral deformity of the cartilaginous bridge. 1 Incision along the anterior border of the cartilage close under the skin. 2 Horizontal incision beneath the obstructory part of the septum.

thumb of the left hand is placed against the second nasal bone where it overlaps the ascending process of the superior maxilla. As the elevator raises the first bone and forces it outward, the second nasal bone is raised also by the pull on the skin and periosteum

over it so that its outer edge is unlocked from the ascending process of the maxilla. While this is happening, pressure from the thumb forces this bone into the median line. In this manner both bones are replaced in their original position. In an old fracture of the nasal bones, on the other hand, the overlapped edges of the off nasal bone and the ascending process of the superior maxilla grow together and exaggerate at this point the deformity present in the fresh fracture. Therefore, in correcting old fractures of the nasal bone with much lateral displacement, after freeing the nasal bones with the chisel and forcing them into the middle line, there is a marked projection left, which is caused by the thickened edge of the ascending process. This must be chiseled off or there will be a marked deformity. As I have shown, it is a very easy thing to correct when you have recognized that it is there to correct.

The After Treatment.—Great care is necessary, as the patient is coming out of the ether, to see that he does not hit his nose and disturb its position. Hospital care is required for the first three or four days. In about half of my cases, I used a double finger splint after the fifth day and kept it on two weeks. When it was necessary to keep the splint on longer than three weeks, the bones were not satisfactorily dealt with in the beginning. In regard to the splint, I am convinced that if much pressure is required from it in order to hold the nasal bones in place, the result of the operation will be a disappointment. The bones must be free enough to lie in the median line with little or no support. In accomplishing this, the transverse incisions across the root of the nasal bones are all important.

In most cases of old fractures of the nose there is not only deformity of the nasal bones, but also of the lower half of the nose, or the cartilaginous part. This shows in a deviation of the anterior edge of the quadrangular cartilage to the same side toward which the nasal bones are deviated. The anterior edge of the quadrangular cartilage is responsible for the support and so for the shape of the lower half of the bridge. In addition to the deformity of the cartilaginous bridge, there is usually blocking of one nostril. This, again, is due to the quadrangular cartilage. In the majority of cases, this cartilage is fractured through its body horizontally, or it is dislocated at its base. In order to get the anterior edge of the quadrangular cartilage into the middle line, it is necessary to free it from the skin which lies over it and to replace its base. I have tried to accomplish this in my cases by an incision within the nose just under the skin of the bridge and over the anterior edge of the quadrangular cartilage, and

then, by making a horizontal base cut below the obstruction, and, after breaking the tip of the vomer and destroying the spring of the back part of the septum, to button the flap over into the free side. This, of course, is the usual well-known procedure. The especial point which I wish to bring out is this: that in order to hold the cartilage in line it is necessary to place in the nose either a large tube or a very considerable amount of packing. Either of these tends to disturb the nasal bones and to reproduce the original deformity. For this reason I go through the motions, as it were, of correcting the deformity of the cartilage when I correct the deformity of the nasal bones, but I am prepared for disappointment as regards the cartilage in most cases, and I am not surprised if a second operation is necessary in order to do as well by the cartilage as is possible. As a rule, the occluded nostril is on the side toward which the nasal bones are deviated. When, however, the opposite nostril is blocked, the tube or packing does not interfere so much with the corrected position of the nasal bones, so that it is possible in such cases to get a much better result in treating the deformity of the cartilage at the first operation. It is disappointing to find the cartilage so rebellious. The correction of the deformity of the cartilage is much harder and much less satisfactory than the correction of the deformity of the nasal bones.

The first question asked in regard to the external method is, "Does it leave a scar?" In most of the cases, the scar is hard to find; in none is it worth considering. I should never hesitate to use the external method on account of the question of scar. Not even a woman could object to it. If the incision through the skin is made with a knife and not with the chisel, as it might readily be, there is no gluing down of the scar to the bone and no pitting.

In conclusion, it is well to bear in mind that the nasal bones continue to the middle like the plane of the ascending process of the superior maxilla. Developmentally and practically, they are one and the same bone. The bony nose is formed like a tent. The nasal bones make the apex and the upper part of the sides, while the ascending process of the superior maxilla make the lower part of the sides. If you change the apex of the tent and the upper part of the side, you must change also the lower part.

828 Beacon Street.

NEW INSTRUMENTS FOR SUBMUCOUS RESECTION OF THE SEPTUM.

BY JOSEPH C. BECK, M. D., CHICAGO.

This SYRINGE (Fig. 1) has these principal features: It is all metal (and therefore sterilizable); it never leaks; and it is adaptable to many uses where a syringe is needed. It is constructed on a Ferguson model in that it has an all-metal piston. The handle of the syringe is long for various reasons: first, in order to get a firm grip on it; second, it contains a screw arrangement for expressing

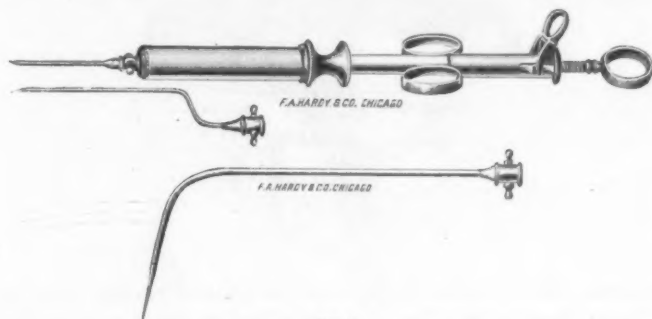


Fig. 1.

the substances drop by drop, having a clasp that releases this screw similarly to a Farlow tonsil snare, so that the whole contents of the syringe may be injected at one time. Again, it is necessary at times to heat the substances to such a marked degree as to make it uncomfortable to hold the syringe were it not for this long handle, as, for instance, in the use of paraffin for correction of deformities, or in the use of boiling hot water for the destruction of angiomatous tissue, as recommended by Wyeth.

The needles differ as to their special uses, so one point is straight and can be used for any hypodermic injection, Schleich solution, paraffin injection, infiltration anaesthesia of the external and middle ear, also of the mastoid process, as recommended by Neumann. For the anaesthesia of the septum, particularly for the submucous resection, and the removal of ridges and spurs, this straight point works admirably. For injections in and about the tonsils, for anaesthetic and hemostatic effects, before doing a tonsillectomy on the

adult, I have used it with good results. The bayonet needle point is particularly adaptable for injections into the inferior turbinated body in cases of atrophic rhinitis with vaseline and paraffin, as recommended by Lake and others. For anæsthetizing the lateral wall of the nose in the operation on the antrum of Highmore, it is used with good success. The laryngeal needle point is the one well known as Herring's, and is used principally for injections into a tumor mass in the larynx, or tuberculoma of the larynx.

All these needles are provided with two little knobs which give us a firm hold of the neck of the needle, and thereby enabled us to tighten the latter firmly to the syringe, and also facilitate the removal of the needle. When the syringe has been used for paraffin

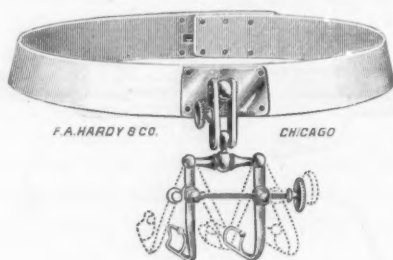


Fig. 2.

injections, the best way to get rid of the retained paraffin is to dip it first in benzine for a few moments, and then follow with alcohol. I have used this syringe over two years and can recommend it.

This SELF-RETAINING OPERATIVE NASAL SPECULUM (Fig. 2)* is particularly adaptable for the operations on the septum, where it is desirable to have both nostrils fully dilated at the same time. It is constructed of a cross-bar in the center of which there is a ball for attachment to any head-band. At each extremity of this horizontal bar is attached a vertical shank terminating in a half-curved retractor, which runs at right angles to the shank. These retractors are shaped similarly to an eye speculum, and have at the anterior upper corner a small bulbous enlargement which fits into the most anterior part of the vestibule, similarly to a Pyncheon speculum. About midway between the horizontal bars and the retractors, fastened to the vertical shanks, is fixed a screw, so arranged that it

* Since this article was written I have been using the operative speculum in the following manner: The ball of the speculum is connected to the ball of any head band by an ordinary rubber elastic 2 inches long. It simplifies the matter of adjustment, and has sufficient power to raise the tip of the nose to the desired height, also allowing one to remove and replace the speculum rapidly.

will open the speculum to the right and left sides simultaneously. The joints of the shanks to the horizontal bar and also the screw are so arranged as to give this speculum a lateral movement, which is of particular value in that it is adaptable to any shaped nostril. The retractors can be approximated so near one another as to enable one to use the speculum in one nostril also.

The method of application of the speculum is as follows: First, open up by means of the screw the retractors to such a distance as will admit the septum. Second, introduce the retractors into the right and left nostrils. Third, fasten the head-band (I have been using the celluloid head-band, and always try the size of the patient's head before introducing the speculum into the nose.) Fourth, dilate the nostrils by turning the set screw and adapt the speculum to the shape of the nose by the lateral movement of the speculum.



Fig. 3.

This is best done by catching hold of the horizontal bar and moving the vertical shanks either to the right or left. In order to elevate the tip of the nose, I have put the head-band slightly higher on the forehead, or had the assistant or patient pull on the head-band at the back of the head. As a rule, however, this procedure is not absolutely necessary.

The DILATOR AND CLAMP (Fig. 3) has developed from the desire to have something that will save the flaps in the operation for the submucous resection of the septum. It is a J. B. Murphy's intestinal clamp modified by making it thinner and adding a set screw, so as to be able to dilate it to any desirable width, or to allow it to come together by its own spring action. The use of this instrument as a dilator is as follows: After the muco-perichondrial flap has been made and dissected free, and the cartilage cut, and the opposite mucous membrane separated, the instrument is introduced, the cartilage in between the blades, and the mucous membrane flaps

dilated to any desirable distance. By this means I am able to use the Ballenger swivel knife with considerable ease, and also in the introduction of forceps it will often save injury of the flaps.

The use of this instrument as a clamp is as follows: After all the septum has been removed that is necessary, the flaps are ad-



Fig. 4.

justed and the clamp is placed, one blade in each nostril, and allowed to clamp the two mucous membranes together. This allows a perfect space for packing without distorting the flaps, and after the packing is finished the clamp is removed.

Fig. 4 shows both the operative speculum and clamp in position. AUTOMATIC CHISEL. (Fig. 5.) In order to overcome the objec-



Fig. 5.

tion of having an assistant do the hammering when one is chiseling off the bony ridge that is so frequently found at the floor of the nose, especially so when doing a submucous operation on the septum, this instrument suggested itself to be of particular value. It is an automatic dental hammer, which has two points for attachment at either end, one for a forward movement, and the other backing on the pull. There are four attachments, three shown in the cut, namely, the Hajek's chisel, a straight chisel, a gouge, and an angular chisel which does its work on the pull in chiseling off the ridge from behind forward. These chisels will cut bone very readily. The instrument is constantly under one's absolute control. I have repeatedly used it to remove small spurs and ridges, sub-

mucously, independent of the regular submucous window resection of the septum.

· WEDGE SEPTUM KNIFE. (Fig. 6.) To avoid the possibility of perforation of the mucous membrane on the opposite side in these submucous operations on the septum, I have been using this special shaped knife. It is so constructed as to remove a wedge-shaped piece of cartilage, allowing easy introduction of the blunt elevator.

In conclusion, I wish to very briefly state that to my mind a great advance has been made in intranasal surgery by the submucous window resection of the septum, and that perfection of the technique will be productive of many cases of cures in the nose, throat and ear affections, with minimum amount of traumatism and



Fig. 6.

loss of function. I believe every man perfects his own technique to suit his individual case, and also selects the kinds of instruments that he is able to do the operation with best. I have been doing this operation since Freer's first publication and report, and up to date have operated on fifty-two cases with good results. At present I use the following instruments for this operation:

- No. 1. Author's self-retaining operative nasal speculum.
- No. 2. Author's infiltration syringe.
- No. 3. Freer's straight knife. (Nos. 3 and 4)
- No. 4. Freer's sharp elevator. On one handle.)
- No. 5. Hajek's semi-blunt elevator. (Nos. 5 and 6
- No. 6. Hajek's blunt elevator. On one handle.)
- No. 7. Author's wedge septum knife. (Nos. 7 and 8
- No. 8. Freer's straight septum knife. On one handle.)
- No. 9. Author's dilator and clamp.
- No. 10. Ballenger's swivel knife.
- No. 11. Strong angular tissue forceps, rat-tooth.
- No. 12. Author's automatic chisel.
- No. 13. Freer's bone-cutting forceps, small and medium size.
- No. 14. Killian's needle.
- No. 15. About twenty wire applicators, all cotton wound.

92 State Street.

FORCEPS AND KNIFE FOR USE IN THE SUBMUCOUS SEPTAL OPERATION.*

BY JOHN MCCOY, M.D., NEW YORK.

The knife has a movable blade at right angles to the shaft, which blade is sharp on all its presenting edges and can be adjusted easily to any desired length by the small thumb-screw at the end. This knife is used for the double purpose of making the primary incision in the mucous membrane (the incision used being the vertical incision



Knife of Dr. John McCoy for making primary mucous membrane incision and later incision through cartilage in the submucous septal operation.

only, on the convex side, anterior to the deformity), and later as a particularly safe instrument for making the incision through the cartilage, without incurring the danger of perforating the mucous membrane of the concave side.

Two forceps are shown. The straight forceps are used for the purpose of removing both the cartilaginous and bony septum. An im-

* Read before the Laryngological Section of the New York Academy of Medicine, November 22, 1905.

portant point is that these forceps will remove the bony septum without fracturing it. The second forceps with the curve downward at the end are used for the purpose of removing the submaxillary ridge



Forceps of Dr. John McCoy for submucous removal of deviated cartilaginous and bony septum.

when it is included in the deviation. With these forceps no special speculum is required, as the forceps themselves act to separate the muco-perichondrium and periosteum. I have been using these in-



Forceps of Dr. John McCoy for maxillary ridge in submucous septal operation.

struments for some time and on many cases, and they are very safe and every effective. These three instruments, together with a sharp and a blunt elevator, are all that are necessary in the performance of the submucous operation.

157 West 73d Street.

POST-OPERATIVE HEMORRHAGE FOLLOWING THE REMOVAL OF THE PHARYNGEAL TONSIL.

BY HOMER DUPUY, A. M., M. D., NEW ORLEANS.

Excessive hemorrhage following the removal of the pharyngeal tonsil, or so-called adenoid, has not been accorded the deep consideration it really deserves from writers of textbooks. A brief allusion to its remote possibility, and the subject is dismissed. We are thus lulled into a fancied security, from which we might be rudely awakened by the tragic event of an unexpected death from a surgical procedure apparently so simple and innocuous that the unskillful and overzealous rush in where the most experienced and specially-equipped surgeons should tread lightly.

A brisk hemorrhage some hours after adenectomy, in the writer's practice, which left his patient extremely prostrated, roused his attention and stimulated an investigation of this subject. An extensive search into the literature covering a period of thirty-five years, up to the first of December, 1905, has resulted in the collation of thirty-eight cases of alarming hemorrhage following adenectomy, with eleven fatalities. A few cases have been personally reported to the author. For a proper appreciation of these figures, which for obvious reasons only approximate the whole truth, we must remember that adenectomy has been practiced generally only since 1871.

Compared to the great number of adenectomies performed, the fatal results appear to be few, but this, in all probability, is due more to our inherent weakness of not heralding failures than to their non-occurrence. If death can occur from adenectomy, it is incumbent on those who are daily performing it to place the operation on the highest plane of safety. A deep appreciation of our large responsibilities forbids any but the specially trained surgeon to attempt its performance. There is a growing and dangerous tendency to underestimate the technical difficulties of this operation, which is in every sense a major one, fraught with good or ill to the patient in direct proportion to the skill of the operator.

A brief record of the fatal cases cannot fail to impress a healthy lesson:

CASE 1. Preble, with forceps and fingers, removed a moderate growth of adenoids in a girl of eleven years. During and immedi-

ately following the operation the bleeding was not severe. On the seventh day after the operation, while out for a walk, a hemorrhage occurred; it ceased under cold syringing. She was then taken to a hospital, where the bleeding recurred, but yielded to post-nasal plugging. On the eighth day after the operation there was another recurrence, which ended life before the house officer could reach her. No mention of hemophilia.

CASE 2. Kenefick performed adenectomy on a boy of four years. Two hours after the operation profuse bleeding occurred, which ceased under post-nasal packing. The bleeding recurred at various intervals during forty-eight hours. Vigorous local and constitutional measures were instituted, which failed in warding off the fatal issue. Subsequently a clear personal and family history of hemophilia was obtained.

CASE 3. Schmiegelow reports a case in which adenotomy was immediately followed by a gush of blood, the patient dying before any assistance could be rendered. Post-mortem examination showed the internal carotid to have been pushed from its normal position by an enlarged lymphatic gland and occupying the naso-pharynx; in this region it was penetrated by the curette.

CASE 4. Soch operated upon a male child, aged ten, in whom fatal bleeding occurred on the fourth day. Inquiry after the operation elicited a clear personal and family history of hemophilia.

CASE 5. Bliss performed adenectomy on a boy aged 7, who, while anemic, appeared otherwise well nourished. The operation completed, the mother casually referred to the bleeding of her older son. Further questioning brought out the fact that a hemorrhagic diathesis existed on the mother's side. The very patient operated had suffered from swellings of the joints and extensive ecchymoses following contusions. The first visible bleeding appeared the following morning after the operation. Post-nasal packing, ergot, saline transfusion, proved insufficient to arrest the constant oozing, which caused death four days after the operation.

CASE 6. Newcomb operated upon an anemic boy, aged three. Not the slightest evidence of personal or parental hemophilia existed. The bleeding was brisk and ceased quickly. Four hours subsequent to the operation, hemorrhage set in and oozing continued steadily for twelve hours, after which the mother decided to call in the physician. His efforts were of no avail. The child had simply been left to bleed to death.

CASE 7. Delavan reports the case of a boy, aged two years. Adenoids were removed under ether, with forceps and finger-nail.

Only slight bleeding occurred at time of operation. Eight hours after there was profuse bleeding from the nose. This subsided, and when seen next day by the family physician the child seemed in excellent condition. At 12:30 of the same day bleeding occurred. When seen by the operator at 3:30 p. m., the patient was moribund and beyond remedial measures. Investigation before operation disclosed no hemophilic tendency. Afterwards the parents admitted that the boy's maternal grandmother and other relatives on that side were undoubted bleeders.

CASE 8. Burger excised the pharyngeal tonsil from a boy aged eleven. A half hour after the operation bleeding occurred from naso-pharynx, necessitating post-nasal tampons. Hemorrhage, however, continued, patient dying a few hours after the operation. Post-mortem examination disclosed marked leukemia. The fatal result was attributed to this blood condition.

CASE 9. Barkan removed both faucial and pharyngeal tonsils from a strumous boy of six. A few hours after the operation he vomited a great deal of blood, presumably swallowed during and immediately after the operation. No trace of actual bleeding could be found after repeated examinations. About 5 p. m. the same day patient cried and coughed considerably, which caused blood to flow both from the nose and throat. The operator was then called and saw a moribund child. Patient rallied under stimulation and saline enemata. Paquelin's cautery was applied over the bleeding surfaces, with apparent success. Blood, however, trickled from the nose. Further examination was followed by a sudden gush of blood. The child gasped and stopped breathing. A clear-cut disposition to hemophilia was not proven, and many possible sources of the bleeding were considered without arriving at a definite conclusion. (The writer includes this case in his collection, even though a double operation was performed. As the bleeding occurred from both regions operated, the adenectomy certainly contributed its share in causing the unfortunate result.)

CASE 10. Under ether, Stewart removed both the faucial and pharyngeal tonsils from a male, aged seven. Bleeding at the time of operation was quite copious. Three hours after, it was found that both sides of the neck and the left cheek were greatly swollen from blood extravasations. These swellings increased, reaching even the sternum and clavicles. No further bleeding observed in the mouth and naso-pharynx. Half a drachm of calcium chloride was administered by enema. Dyspnea developed, coincident with extravasations of blood into the pharyngeal submucous tissues.

Thirty hours after the operation the dyspnea necessitated tracheotomy. General condition did not improve under stimulation and death occurred thirty-two hours after the operation. Post-mortem disclosed no other abnormality, except a large thymus gland. Despite the negative history of hemophilia, the case was regarded as one of hemophilic tendency.

CASE 11. Hooper performed a digital examination of the nasopharynx for diagnostic purposes in a subject, who afterwards proved to be hemophilic. Death resulted. (This case is considered in the nature of a crushing operation.)

Considering the thousands of adenectomies performed without serious hemorrhage, there must exist some special causes which lead to these regrettable accidents. Making the best analysis possible of the collated cases, reinforced by general considerations, the following causes may be enumerated:

(1) HEMOPHILIA: It is generally conceded to be a potent factor in the severe hemorrhages which sometimes follow surgical operations. Hemophilia, however, has not received its deserved attention from those who have recorded untoward results in adenectomy. The majority of the reports do not make the faintest allusion to it. This apparent indifference may receive some justification when we admit how difficult, and almost impossible, a task it is, to obtain definite information relative to hemophilia from the parents of the patient. My tabulated cases present only eight records in which this diathesis was positively established. In most instances a history of the bleeding tendency was obtained *after the operation*. It is important to note that the bleeding in five of these cases terminated fatally.

In the true hemophilic, alarming or disastrous results may follow the slightest injury. That the naso-pharynx is not exempt from such accidents is evidenced by Vander Poel's experience (*THE LARYNGOSCOPE*, 1898, p. 255). He removed from a bleeder a mere fragment of adenoid tissue for examination, which was immediately followed by bleeding lasting two days. Hooper (*THE LARYNGOSCOPE*, 1898, p. 253), had a similar accident in a hemophilic, who bled fatally from a simple digital examination of the post-nasal space.

(2) CONSTITUTIONAL CAUSES, NOT HEMOPHILIC: Other dyscrasias, such as struma, lymphadenoma, exophthalmic goitre, and the various forms of anemia, have each, in their turn, been held responsible for severe post-operative hemorrhages.

Burger found every evidence of leukemia at the post-mortem of a girl of eleven, who bled to death after adenotomy. Under con-

stitutional causation may be recorded Roy's case (Table 2, case 20), which bled profusely three hours after the operation. As the menses were due, this was regarded as a vicarious hemorrhage. Cartaz (Table 2, case 2) also cites an instance in which the occurrence of uterine colic, coincident with the post-operative bleeding, suggested the onset of the menstrual period. Revulsive measures proved effective, and the post-nasal hemorrhage ceased on establishing the uterine flow.

(3) AGE. The question of age is important, and we have every reason to expect more accidents from adenectomies performed on less youthful subjects. After puberty, the pharyngeal tonsil, when it persists, becomes more vascular and is largely enmeshed with fibrous tissue, which might prevent the vessels from contracting when cut through. However, as this procedure is more frequently resorted to in children, they furnish the bulk of reported cases. The statistics give fourteen cases occurring in the first decade, and eighteen in the second; the youngest subject was 2 years old, the oldest 28.

(4) SEX. In the collected cases, twenty-one were males, fourteen females. Transmission of the hemophilic tendency occurs through the female side to the male members of the family. This admitted fact is substantiated by the records, for of the eight instances presenting histories of hemophilia, seven were males. Four of these seven hemophiles died from post-operative bleeding. The writer's case (Table 2, case 27), female, did not end fatally.

(5) LOCAL CAUSES: The naso-pharynx presents anatomical features which are certainly contributing factors in these unusual hemorrhages. This cavity, in the first place, receives a rich blood supply, with a final distribution, which terminates in numerous ramifications, anastomoses and plexuses.

Abnormal arterial distribution may render the field of operation more or less unsafe, particularly to the clumsy and inexperienced operator, who not infrequently buttonholes the mucous lining of the walls of the pharynx. An arterial anomaly observed several times by the writer is that of a vessel, probably the ascending pharyngeal, the size of a crow quill, superficially situated and pulsating, coursing along the junction of the posterior and lateral walls of the pharynx. Similar observations are reported by Sanderson (*Brit. Med. & Surg. Jour.*, 1887, vol. 2), and Baber (*Ibid.*, 1887, vol. 1). Schmiegelow's extraordinary case, in which the malposition of the internal carotid led to a fatal issue, is recorded above.

TABLE I.
 CASES OF HEMORRHAGE FOLLOWING ADENECTOMY.—FATAL CASES.

	Operator.	Reference.	Age.	Sex.	Instrument Used.	Time of Bleeding after operation.	Methods used for arresting hemorrhage, and remarks.
1	Preble	Boston Med. & Surg. Jour., Vol. 138, '98.	11	f	Forceps.	7th and 8th day.	Post-nasal packing. No history of hemophilia.
2	Schmiegelow	Centr. Alb. f. Chr., 1897.		m	Curette.	Immediately.	Anomaly in course of inheritance could not be traced.
3	Sochs	Jour. Laringol., Rebman, 1900.	10	m	Curette.	Two hours, continuing for 2 days.	Solutions of iron. Packing. Positive personal and family history of hemophilia.
4	Bliss	Trans. Am. Laringol. Ass., 1900.	7	m	Forceps.	12 hours.	Hemophilic history on maternal side. Post-nasal packing. Ergot. Saline transfusion. Post-nasal packing.
5	Kenefick	Laryngoscope, 1893, p. 251.	4	m	Curette and forceps.	8 hours.	Maternal grandmother a hemophilic.
6	Delavan	N. Y. Med. Jour., 1892.	2	m	Forceps.	1/2 hour.	Tampon. Post mortem showed leukemia.
7	Burger	La Presse Oto-Laringol., belge, 1903.	11	m		4 hours.	No treatment attempted. Hemophilic history negative.
8	Newcomb	Amer. Jour., 1898, vol. 2.	3	m	Curette.		
9	Barkan	Occidental Med. Times, 1894.	6	m		Few hours.	No distinct history of hemophilia. Both adenoidectomy and tonsilomy performed.
10	Stewart	Lancet, Nov. 15, 1902.	7	m		3 hours.	Tracheotomy and stimulation; in spite of negative history regarded as hemophilic.
11	Hooper	Laryngoscope, 1890.		m	Finger.	Immediately.	Considered as an incomplete operation; hemophilic history.

TABLE II.
CASES OF HEMORRHAGE FOLLOWING ADENECTOMY.—NON-FATAL CASES.

	Operator.	Reference.	Age.	Sex.	Instrument Used.	Time of Bleeding after operation.	Methods used for arresting hemorrhage, and remarks.
1	Gelle	Revue hebdomadaire de Laryngol. (etc.), Paris, 1890.	9	f	Forceps.	2 hours. Recurrence next day.	No mention of hemophilia.
2	Cartaz	Ibid.	17	f	Forceps.	15 hours.	Menses due at time of operation. Bleeding ceased spontaneously.
3	Renner	Ibid.	17	f	Forceps.	2 hours.	Post-tampon large fibrous adenoid.
4	Segon	Ibid.	16	f	Curette.	8 days.	Ceased spontaneously.
5	Lacourret	Ibid., 1895.	14	m	Curette.	5th day.	Slight bleeding at time of operation.
6	Beausoleil	Boston Med. & Surg. Jour., 1898, p. 467.	15	m	Curette.	5th day. Recurrences 7th, 8th, and 9th days.	Perchloride of iron applications. Fibrous adenoid with large vessels in tissue.
7	Kahn	Ibid.	5	f	Curette.	Immediately.	Thin layer of bone removed with tonsil. Posterior plugging.
8	Heelmortel	Ibid.	9	f	Curette.	5th day.	Ergot. Ice-cold drinks.
9	Heelmortel	Boston Med. & Surg. Jour., 1898, p. 467.	6	f	Curette.	5th day.	No mention of hemophilia.
10	Rualt	Rev. de Laryngol., (etc.), Paris, 1890.	28	m	Forceps.	Immediately. Four recurrences in 24 hours.	Syncope. Anemia, lasting 3 mos. after operation.
11	Rualt	Ibid.	18	m	Forceps.	20 hours.	Syncope. Cold and hot irrigations. Tampons.
12	Hernet	Rev. Internat. de Laryngol. et Rhinol., May, 1892.	11	m	Forceps.	4 hours.	Repeated post-nasal plugging.
13	Capart	Ibid.	adult	m	Curette.	Immediately. continuing several days.	Tampon. Syncope, after which hemorrhage ceased.
14	Rousseau	Ibid.	9	m	Curette.	Immediately.	Syncope.
15	Hall	N. Y. Med. Jour., Oct. 12, '89.	19	m		Immediately.	Syncope, after which no more bleeding.
16	Richards	Ibid.		m			

17	Martin	Laryngoscope, 1899, vol. 7.	16	f	Curette.	1 hour.	Post-nasal packing.
18	Martin	Laryngoscope, vol. 7, 1899.	7	f	Curette.	4 days.	Ceased spontaneously.
19	Martin	Ibid.	6	f	Curette.	9 days.	Post-nasal tampon.
20	D. Roy	Ibid.	18	f	Curette.	3 hours.	Applications suprarenal extract. Menses due at time of operation.
21	Vander Poel	Ibid., 1898, p. 256.	4	m		4 hours.	Post-nasal packing. Hemophilic history, personal and family.
22	Delavan	N. Y. Med. Jour., Oct. 12, 1889.	4	m		recurrences during 36 hours. Immediately.	Effect of operation felt for two months.
23	Gordon King	Reported to the writer.	7	f	Curette.	5 hours.	Anemic before operation. Adrenalin solution sprayed in naso-pharynx.
24	Gordon King	Ibid.	10	m	Curette.	Primary.	Hemophilla established after operation.
25	Gordon King	Ibid.	15	f	Curette.	4 hours. Bleeding continued for 3 hours.	Adrenalin locally.
26	Plaget	Rev. hebdomadaire de Laryngol. (etc.) Paris, 1898, No. 46.	14	f	Forceps and curette.	1 hour.	History of hemophilla. Antipyrin, peroxide, tampons, saline infusions.
27	Dupuy	Writer's case.	14	f	Curette.	4 hours.	Spray of peroxide of hydrogen. Mother a bleeder.

Undue prominence of the pharyngeal orifices of the Eustachian tubes, the turbinated bones, extending beyond the posterior nares, the posterior border of the vomer projecting far back into the post-nasal space, are anatomical variations which render these parts vulnerable.

That traumatism itself is sometimes responsible is well exemplified in a case reported by Kahn, (Table 2, case 7), who removed the pharyngeal tonsil with a Gottstein curette, a thin layer of bone being detached at the same time from the vault of the pharynx. Profuse bleeding resulted, the arrest of which required tamponing. Only post-operative rhinoscopic examinations can show how much instrumental injury is associated with many of these excessive hemorrhages.

The size and consistency of the pharyngeal tonsil is a determining factor in some of these accidents. It is well known, to workers in this field, that in older subjects, these growths undergo fibrosis, which excess of connective tissue diminishes the contractile power of the vessels and disposes to undue flow of blood. Conversely, less bleeding is to be expected when lymphoid tissue makes up the greater part of this tonsil. The acute inflammatory affections of the adenoid, the frequency of which is not sufficiently recognized, naturally leaves it in an extremely vascular condition. Operative interference while the adenoid is in this state, or shortly after, predisposes to excessive bleeding.

While unable to prove by any data from these collated cases that hemorrhage occurs more frequently when no anæsthetic, general or local, is used, it is highly probable, and particularly in children, that as operation without anæsthesia is accompanied by much gagging and unintentional movements of the suffering patient, under such circumstances there is more liability to instrumental injury.

The statistical evidence does not allow us to conclude that the nature of the instruments used determined some of these untoward results. The curette alone was used far more frequently. This instrument is deservedly becoming the instrument of choice, as the forceps are capable of causing more injury, even in expert hands. There is no safe instrument for the unskillful and inexperienced operator.

REMARKS AND POST-OPERATIVE MEASURES

Of great practical import is the question relating to the time of the bleeding. In the vast majority of instances this complication appeared within the first twenty-four hours after the operation. A

few records show undoubted secondary hemorrhages; noteworthy is **Preble's case** (Table 1, case 1), in which a fatal accident occurred on the eighth day.

Among the agents pressed into service to control the bleeding, perchloride of iron, ergot, antiyprine, and adrenalin, were frequently used and with varying results. Post-nasal tamponing was the measure most frequently resorted to and with most gratifying results, except in hemophilia.

To induce syncope by placing the patient in the upright position is a recommended, though crude and uncertain, mode of arresting post-operative bleeding. My records bear witness that in a few instances the occurrence of syncope produced the desired result. In many more, however, it had no influence whatever.

There is no guarantee that even after operating a great number of times we will be so fortunate as to escape our Waterloo. Undesirable, even, are those hemorrhages in which death is escaped, but which leave the patient profoundly exsanguinated and the general health impaired for months. Not a few of the accidents recorded might have been prevented by a careful inquiry *before operating* relative to the hemophilic tendency.

Our first and most important duty is to elicit all facts relating to the possible existence of this diathesis. We must remember that heredity is a strong factor and that hemophilia is transmitted through the female members to the male offspring. Important is the claim that hemophiliacs suffer from throat affections to an unusual degree. They are thus thrust on us. Traces of this diathesis may exist in families and in individuals without the appearance of such typical symptoms as joint affections and ecchymoses. Generally the history of how the family behave after tooth extractions is a pretty safe guide as to our own attitude.

In the light of present knowledge relative to the value of chloride of calcium as a hemostatic agent, we really seem justified in no longer regarding the hemophilic as hopelessly inoperable. Accumulating evidence tends to prove that if this drug be given internally a few days prior to operating, the hemophilic shows a markedly lessened tendency to excessive bleeding, both during and after operation. The dose recommended is 30 grains as the initial one and five grains every hour until five or six such doses are taken. This treatment is kept up for not more than three days before the contemplated operation, for if too much of the drug is given the blood loses its coagulating properties.

As already intimated other dyscrasæ, such as the rheumatic, the strumous and many forms of anemia, are positive contraindications to operative measures.

Our conduct in the presence of hemorrhages of this nature should be to proceed either by the use of hemostatics or by resort to mechanical means. Adrenalin, in the writer's experience, and from accumulating testimony, deserves its reputation as a powerful vaso-motor constrictor. By repeated and forcible injection through a good spray of the original solution into the nasal cavity, it will reach the bleeding surfaces. Unless the hemorrhage has its source in a large vessel the adrenalin will seldom fail us. In extreme cases its administration internally is not devoid of benefit. Peroxide of hydrogen, used in the same manner, has, in my own experience, answered the purpose admirably. The possibility of its entering the accessory sinuses is remote and, moreover, the grave complication which we are fighting justifies any measure.

These two hemostatics will be especially applicable where there is constant or intermittent oozing of blood along the posterior pharyngeal wall, or through the nose. When there is a brisk flow, spurting in character, we cannot safely place reliance on any drug, used locally or internally. Time is an important element and post-nasal plugging should be quickly performed. Effective also is the thrusting of a strip of gauze behind the soft palate by digital manipulations. The gauze is packed tightly, filling the whole rhinopharynx, and is kept in its wedge-like position by forcible pressure of the hand, carried behind the soft palate. It cannot be insisted on too strongly that the armamentarium of the throat specialist should contain such essentials as hemostatics and the various mechanical appliances which best permit him to cope with a problem of the gravest import. Post-nasal plugs of various sizes should be always ready for immediate use. We must be forearmed and ever on the alert.

While it is quite obvious that in a strict sense we have no preventive measures, we can at least minimize the risk of bleeding by enjoining, after adenectomy, enforced rest in bed for 24 hours after the operation. The next day should be spent indoors quietly and free from all boisterous playing. The giving of cold drinks and chipped ice *ad libitum* should form part of the routine post-operative treatment. These measures are imperative, particularly in young subjects, if we wish to avoid a catastrophe.

A CASE OF VICARIOUS BLEEDING FROM THE EXTERNAL AUDITORY CANAL.*

BY GEORGE E. SHAMBAUGH, M. D., CHICAGO.

In July, 1900, Mrs. T. consulted me on account of bleeding from her right ear. She gave her age as 25, had been married seven years, had two children, both living and well. She had never had any previous ear trouble. The bleeding from her ear began five years previous when several hours after a Thanksgiving dinner she experienced a flushing of the head accompanied by a sinking spell. At this time the right ear began to bleed freely and continued bleeding for fully half an hour, saturating a number of handkerchiefs and followed by a decided relief in her head symptoms.

Dating from this time she had experienced similar attacks of bleeding from the ear always preceded by the feeling of fullness in the head and occurring usually a day or two before the time for her regular menstrual flow. The bleeding from the ear did not occur every month, but often skipped one and sometimes two months. When the bleeding from the ear did occur she always noticed that the regular flow was correspondingly diminished and not infrequently the bleeding from the ear would take the place completely of the menstrual flow. The amount of blood discharged from the ear varied from one-half dram to one-half ounce, and occurred at intervals lasting over several days.

Several times during the five years she had suffered from furuncles in the affected ear. Aside from the bleeding and the furuncles the only thing she had noticed about the ear was the feeling as though the ear was being filled up. It was the latter sensation as much as the bleeding that led her to consult me.

On examining the ear the canal was found to be partially obstructed by a swelling of the upper wall just inside the meatus. This swelling was smooth, covered with the normal skin lining the canal, and was quite early compressed, so that while it was found to fill two-thirds of the opening of the canal by a little pressure a speculum could be introduced. At the lower tip of the cone-shaped swelling was a pin-point area where the continuity of the normal skin was broken. No tenderness was experienced on pressure.

* Read before the Chicago Laryngological and Otological Society, December 5, 1905.

During the two years following the first examination the patient was seen a number of times; the bleeding from the ear continuing the same. The patient, in addition, often complained of periods when there was a slight watery discharge from the ear. The swelling in the meatus during the several days in the month when the bleeding would occur increased in size often completely blocking the canal. On one occasion the ear was bleeding when the patient consulted me, and at that time I saw several teaspoonsful of blood escape from the ear. The bleeding point was observed to be the point referred to above at the tip of the nipple-like swelling. On this occasion I touched the bleeding point with crystals of Chromic Acid. The bleeding stopped and since that time there has been but a few occasions when a slight bleeding from the ear has taken place.

At one time two years ago there appeared a diffuse superficial ulceration of the canal just external to the swelling. This ulceration extended rapidly until it involved the concha of the ear as well as the lobule. At this time Dr. Frank Montgomery examined the ulceration and pronounced it as probably luetic. The condition healed rapidly under the administration of K. I.

I had not seen the patient for the past two years until several days ago when she consulted me because she had for the past month been experiencing considerable pain radiating from that ear over the side of the head. She says she has had no bleeding from the ear during this period, and the only annoyance has been the occasional watery discharge.

On examination of the ear, the condition is found to be practically the same as when seen in previous years with the exception that in addition to the nipple-like swelling of the upper wall of the canal there is a small flat swelling crowded between this and the posterior wall of the canal. This latter is also covered with normal skin, but is slightly more reddish than the larger swelling.

From the soft spongy character of the swelling, its broad flat base, together with the tendency to swell up temporarily at the time of the menstrual period I have been inclined to believe that the condition was one of angioma.

Vicarious bleeding from the external canal though rare is not an unknown occurrence. A few of such cases appear in the literature. Usually the bleeding points are the opening of the glands found in the upper posterior wall of the canal.

Gradinego points out that a distinction should be made between bleeding from the canal which occurs in the presence of a trauma or a growth in the ear and bleeding that occurs when the canal appears to be quite normal. It is this latter that Gradinego would consider as alone the true vicarious bleeding. In the case that I report here the fact that the swelling in the canal appears to be covered with normal skin and the appearance of the bleeding at the time of the menstrual flow, which it in part or completely supplants leads me to consider this a case of true vicarious bleeding from the external canal.

100 State street.

(For discussion of this article see page 95.)

Purulent Mastoiditis. Sinus Thrombosis. Threatened Cerebral

Abscess. Recovery. J. A. C. MACEWEN (Glasgow) *Annals of Surgery*, September, 1904.

The history of this case demonstrates that it is not always necessary to open the sinus, even in the presence of distinctive symptoms.

A boy of six years, complaining of "discharge from the ear," of considerable duration, together with recent pain and tenderness over the part, and headache. The patient's intelligence was dulled; temperature and pulse were subnormal. The left tympanic membrane was absent, and there was bare bone on tympanic wall. Tenderness was present along the internal jugular vein, and the mastoid region was also sensitive to pressure. An hour before operation, patient was drowsy and had to be aroused to answer questions.

Radical operation revealed considerable pus in mastoid antrum, with considerable destruction of osseous tissue. Malleus and Incus with granulation tissue were removed from middle ear. The anterior wall of the lateral sinus was bathed in pus, and while the lumen of the sinus was not completely occluded, its walls had lost their elasticity, and a parietal clot had probably formed. The sinus was not incised, but after thorough cleansing the cavity was filled with iodoform and boracic powder, and an iodoform drain employed. The temporo-sphenoidal dura was found to be inflamed, and the vessels on its surface were engorged. The dura was not incised. Under frequent changes of dressing, a good recovery followed.

LEDERMAN.

THE TREATMENT OF ACUTE OTITIS MEDIA IN GENERAL PRACTICE BY A GENERAL PRACTITIONER.

BY LENNOX WAINWRIGHT, M.D., FOLKESTONE, ENGLAND.

The subject of middle ear inflammation is one of great importance to all practitioners, and perhaps no ailment presents so many difficulties or demands so much care in the beginning. Early diagnosis is of first importance. In young children, pain in the ear is fairly common, and its prompt treatment is a necessity. The proximity of the dura mater to the middle ear in infants, and the unjoined suture, must always be borne in mind. Charity covers a multitude of sins, but the maternal diagnosis of teething covers a larger area, and frequently includes earache from adenoids and naso-pharyngeal troubles, not to mention the results of bad feeding. Otitis media derives much of its difficulty and uncertainty from being a secondary disease. The extent of its mischief is much influenced by the character of the preceding ailment. Then, frequently, its causation may be due to defect and idiosyncrasy in the individual affected. In very young children, the symptoms may suggest meningitis, and the only localizing sign be a raising of the hands to the head. In those old enough to express their feelings, the same sort of symptoms are complained of from whatsoever cause arising; a sense of fullness in the head followed by pain in the ear, varying in acuteness; temperature, varying in height in different people, and dullness of hearing. Some observers have noted at the beginning of the attack hyperaesthesia of the auditory function, and intolerance of any noise, followed by deafness and otitis. On examining the ear, the canal is usually found to be reddened and swollen, frequently tender, the Membrana Tympani is hyperaemic, depressed, and the short process of the malleus just visible, but owing to the injection in this region, and swelling of the membrane, the bone is often hidden, and when exudation is profuse, the membrane bulges. The three cardinal symptoms briefly, are: pain, loss of function, and Tympanic alteration.

Although symptoms are much alike, causation is a medley. I have divided my treatment of cases into two classes—those capable of being treated by a specific treatment, and those that as yet only receive general treatment.

Downie of Glasgow gives the following analysis of 501 cases:

Originated during Measles,	131	cases or 26.1 per cent.
“ “ Scarlet Fever,	63	“ “ 12.6 “ “
“ “ Whooping-Cough	15	“ “ 3.0 “ “
“ “ Mumps,	3	“ “ 0.6 “ “
“ “ Simple Catarrh,	147	“ “ 29.4 “ “
“ “ Dentition,	101	“ “ 20.0 “ “
Syphilitic,	8	“ “ 1.6 “ “
Doubtful,	33	“ “ 6.7 “ “
	<hr/> 501	<hr/> 100.0

Holt gives the order of frequency thus:

Scarlet Fever.
Epidemic Influenza.
Pharyngitis.
Tonsillitis.
Measles.
Diphtheria.
Typhoid.

To these we must add Traumatism, adenoids, defective nasal respiration, nasal inflammation, infection from external sources, along meatus, extension from furunculosis, extension from meningitis, and defective teeth.

Those capable of receiving specific treatment include Syphilis, Diphtheria, Scarlet Fever, Tonsillitis, and invasion by known germs. The second class includes, I am sorry to say, the post-influenzic variety. With regard to Typhoid Otitis Media, this is generally thought to be an extension from the naso-pharynx. Two German writers consider that it is due to the closure of the tube owing to dryness of the mouth, but we must all admit pyogenic infection. In one case there was found in the discharge a pure culture of Klebs Loeffler Bacillus.

TREATMENT.

Citing a simple case of pain, hyperaemia, loss of hearing, we would apply Cocaine and Adrenalin to the tympanum; counter irritation at the back of the ear (mustard leaf or leeches); disinfect naso-pharynx with peroxide of hydrogen or iodine inhalation; inject medicated air or medicated oxygen through the nostrils; give a calomel purge, and keep patient in an even temperature.

Other adjuncts to treatment are heat of a dry kind, Japanese muff warmer (instra), electric light in an asbestos cone, hot wool,

hot bottles, hot potato wrapped in flannel. Cold may be applied by means of a Leiters coil, and ice bag, but only in early stages.

The patient should rest in bed, and have an aperient. First examine and clear out the meatus if necessary. Apply leeches to the mastoid, and in front of tragus, or mustard leaves, or blisters to mastoid. Inject a continuous stream of oxygen from a collapsing bag through the nostril if possible, or compressed air medicated through a nebulizer. Internally give phenacetin, pulvis Doveri and simple diaphoretics. Treat the intercurrent disease according to individual requirement. As has been pointed out, by a well-known American writer, the air douche from Politzer's bag has the great disadvantage of being both insanitary and intermittent. Pressure, unless it be long enough and strong enough is useless in obstructions of the Eustachian tubes. On the other hand, the nebulized vapor slightly medicated is delivered under pressure, and is always preferable to air, pure and simple. In early cases, it is well to wash out the nares with a warm, weak, alkaline, antiseptic spray, and give a little chloroform to inhale. If possible and safe, the catheter may be passed. Mr. Hovel frequently demonstrated at the London Hospital that a little chloroform inhaled relaxes the tube and enables the air to enter better. I use in place of the Politzer, a globe nebulizer with an oxygen bag attached to the air entrance of the globe. In the nebulizer, I have an antiseptic solution composed of volatile, and other antiseptics, and by forcing the oxygen through, I am able to inject a quantity of oxygenated antiseptic under pressure. This may be done with or without a catheter. Iodine vapour in hot water combined with any volatile antiseptic is an excellent inhalant. Thirty minims of iodine in half a pint of boiling water in a quart jug gives the correct temperature, 150° F. A paper cone over the mouth of the jug completes the inhaler. This followed by the Valsalva method is useful for the patients to practice between our visits. Acid carbolic 1 to 7 or Friar's Balsam is another good inhalant. Menthol, Pinol, and Eucalyptus have excellent reputations.

Several authorities recommend warm fluids irrigated through the meatus with the tube from a douche can. These must be applied frequently, intermittent syringing being irritating and practically useless. Solutions recommended:—Chloretone, 1%; Glycothymoline, 1 in 6; Carbolic Acid, 1%; and weak, warm, pale pink Condy's Fluid; Peroxide of Hydrogen in weak solution. Another method of medicated relief to the tympanum is Adrenaline Chloride 1 in 2000 with a 4% solution of cocaine on wool, passed into the meatus. This seems to reduce the hyperaemia of the tympanum.

The Post-Influenzial Otitis Media is, I think, the most troublesome, because it is such a mixed infection, and follows on a general enfeeblement of the patient's condition unfavorable to surgical procedure, and unspecified as to treatment. Most of the cases appear to come on about ten days after the Influenza, and frequently when the patient is commencing to be exposed to draughts and outside air. In the discharges after paracentesis, and on swabs from the naso-pharynx, the *Diplococcus pneumoniae* and the *Bacillus of Pfeiffer*, combined with *Streptococci*, have been found; whereas in the simple cases of catarrhal origin, uncomplicated by influenza, the infection though mixed does not contain the *Diplococcus pneumoniae* or the *Bacillus of Pfeiffer*, but the *Streptococcus*, *Staphylococcus pyogenes*, *aureus* and *albus*, and *micrococci*. I feel sure the Post Influenzal Otitis Media is a most serious infection as the tissues are already injured by germs rejoicing in living in the upper respiratory tract, and multiplication of the streptococci, and others is almost assured by this excellent soil. In these cases the condition of the patient is most important, and requires tonic treatment. I usually order the iodine vapour early in influenza. I use iodine in glycerine combined with menthol, applied to the naso-pharynx as a paint. I have not tried Antistreptococcus serum in Influenza, but feel sorely tempted. What I find a prominent feature is the intense pain in the ear on coughing, frequently accompanied by pain along the frontal sinus. The complication of the cough makes the intratympanic pressure vary, and tends to increase the pain and danger. After the vapour, I try the nebulized air or oxygen mentioned previously. In the case of my own child, when in the Pyrenees four years ago, I used iodine vapour. I had no air douche or Politzer bag. I did Paracentesis to relieve the pressure and the pain. I used a simple syringe for suction, saturated solution of permanganate of potash as a dressing and no syringing. His hearing is now perfect, and no injury to the drum can be detected. It seems to me that if one can only be fortunate in the earlier stages, fewer chronic cases would be met with.

PARACENTESIS.

Now, supposing the leeches and other treatment do not relieve, the membrane may be punctured with a myringotome.

Paracentesis should be performed when pain persists, and the membrane pulsates or bulges; the incision should be in the post inferior quarter; and up to Shrapnell's Membrane. It should be remembered that drainage is aimed at. I generally wash out the

meatus with an alkaline antiseptic wash first, then Biniodide 1 in 3000, or Peroxide of Hydrogen 10 Vols. 1 to 3 of warm water. After Paracentesis, I use the Siegels Speculum exhausting very gently and inject medicated air up the nostril; many just leave it, but I have found the early evacuation and clearing from the puncture the best plan.

Washing through the Eustachian tube after disinfection of the throat with a weak alkaline disinfectant is useful in cases where the discharge is thickened, but I do not care for it.

About syringing after Paracentesis, this should be done carefully. I use a swab of saturated Permanganate of Potash brushed along the meatus which keeps it clean and acts locally as an antiseptic.

An outside pad of cotton wool is permissible but the meatus should not be blocked in any way.

The auditory meatus should be washed with Alkaline Antiseptic and carefully cleansed with Lysoform or Formolypsol all round the auricular region.

The Myringotome may be used to enlarge openings in order to ensure free drainage after the drum has perforated.

In cases in which perforation has taken place, and good drainage is being maintained, although the discharge may be sero-purulent, I am convinced that the continued use of compressed medicated vapor, and simple external treatment on sound surgical lines will in most cases affect a cure. Mr. Woakes and Mr. Milsom Rees have frequently assured me on this point. But it must be borne in mind that aural medication, although frequently applied through the nose is not to be sneered at by the mastoid hunter. A satisfactory mastoid operation has yet to be found, so with good judgment we should still pursue the medicated, and non-operative line until we are satisfied that we have done enough wisely, and well.

In a brief paper of this description, the causes of persistent chronic discharges cannot be fully dealt with.

Mr. Hovel describes a very severe Post Influenzal Otitis Media, hemorrhagic in type. These cases perforate early, and run a very rapid course. Often the bleeding is severe, and the mastoid cells are rapidly involved. I am much tempted in future cases to try the anti-streptococcus serum early, and drain quickly through the mastoid if the result is not striking.

As has been pointed out, by Dr. St Clair Thomson, nasal trouble frequently follows Influenza, and such irritation as this produces must be treated as early as possible, otherwise the ear will be constantly embroiled.

The treatment of Syphilitic Otitis Media is on the usual lines, but in the otitis following Scarlet fever and acute Tonsillitis, I have injected with success 10 cc. of anti-streptococcus serum. In a case of Diphtheria where the throat and glands remained septic and swollen, and the ear was commencing to give trouble, although I had already injected antitoxin, I injected anti-streptococcus serum with an excellent result. If the glandular and tonsillar infection have been slight, a smaller injection of 5 cc. has had a good result. Looking at cases generally, I think the serum, being comparatively harmless, is worthy of a trial. I am open to conviction and anxious to learn the results of other observers.

It is six years since I first thought of serum for ear cases, and then it was tried in a case with several complications. A patient had streptococcic infection of the bladder, Pneumonia, and severe earache. Temperature, 104° F. Mr. Hurry Fenwick advised me to inject anti-streptococcus serum. After the first injection, the morning temperature fell to 99° F, the pain in the bladder was relieved. A second injection next day relieved the bladder and the earache disappeared. I had no further trouble with the ear, very little with the bladder, and the Pneumonia cleared up in about three weeks. Since then I have frequently used it in severe cases of Tonsillitis with ear trouble, and always with satisfaction.

In young children, old enough to complain, sometimes one has noted complaints of a stinging pain in the tongue, and tingling of that organ on the same side as the ear trouble; this has been marked when lemon or hot drinks have been taken. The pain appears to me to be localized in that part of the tongue supplied by the Chorda tympani nerve on the affected side. If it be allowed that this hyperaesthesia is the result of pressure in the middle ear, and its frequency noted by other observers, it may become an additional and helpful guide to operation in ear trouble. Hovell remarks, in lesions of the facial nerve before the Chorda tympani leaves it, the gustatory function is lessened or even abolished in the anterior two-thirds of the tongue on that side.

I think in any case of acute earache in an infant or very young child, one is perfectly justified in examining under an anaesthetic and being prepared to do paracentesis. Sir Thomas Barlow, and other physicians have frequently pointed out how often ear cases may be mistaken for Meningitis, and certainly these cases do more frequently lead up to than follow Meningitis, and the anaesthetic is justified to prevent mistakes and their sequelae.

If the discharge is bloody and purulent and the walls of the meatus bulge, and the patient complains of parietal headaches, then think of mastoid infection, and do not delay free drainage.

Should the perforation not heal and show signs of unhealthiness in six weeks or two months (less time has justified further operation), then I think drainage should take place through the mastoid Antrum region, and the operation performed on the lines laid down by Eve Hovell Ballance and others. Mr. Hunter Tod, in his paper on Middle Ear Suppuration and its complications, gives an excellent *résumé* of this method of treatment, and Dr. Chevalier Jackson gives reasons and indications for early operation. (LARYNGOSCOPE, May, 1905).

I have purposely refrained from dealing with the treatment of prolonged suppuration, and the complications due to persistent septic conditions. But if these are carefully considered and treated, and yet without success, then I certainly advocate early, simple, mastoid drainage to avoid dangers ahead.

The Pathology of Post-Diphtheritic Paralyses.—M. E. RIST.—

Rev. fran. de méd. et de chir., No. 37, Sept., 1904.

The specific remedy for diphtheria can not prevent post-diphtheritic paralysis. The serum is antitoxic, it is not antibacterial. The author has studied the toxic properties of the bodies of the bacillus of Loeffler and their soluble toxins. He has injected into guinea pigs preparations made of the bodies of the diphtheritic bacilli, and has obtained, after reaching a certain dose, not only the phenomena of cachexia, but inflammation of special organs, as for instance, of the heart and kidneys, and the paralyses, variable and incomplete, and resembling very much those occurring in man. These remained several weeks and were produced in spite of injection of immense doses of antitoxin.

It appears, therefore, that there exists in the bacillary protoplasm a distinct toxic substance lightly diffusible, and slow in action, a poison of the bacterial bodies, a real endo-toxin which resists the employment of the anti-diphtheritic serum. It is this endo-toxin which causes late paralysis, and exerts its baneful effects after the original diphtheritic infection has long since ceased to exist.

SCHEPPEGRELL.

**REPORT OF A CASE OF ACUTE BILATERAL MIDDLE EAR
SUPPURATION, FOLLOWING AN INTRA-NASAL
OPERATION, AND RESULTING IN DEATH FROM PYÆMIA.***

BY OTTO J. STEIN, M. D., CHICAGO.

The history of this case contains several unusual features, sufficient to warrant its being placed on record. The cause of death, as given in the title, may be open to discussion, but in the light of the operative findings, and from the character of the symptoms, it appeared to me to be the proper classification.

The salient points in the case are:

1st. An acute suppurative process in both ears, following an intranasal operation.

2d. Absence of all pain or tenderness in or about the ears subsequent to the incision of the drum membranes on the third and fifth day, respectively.

3d. A profuse aural discharge, showing only diplococci, continuing for sixteen days.

4th. A most profound deafness.

5th. The maintenance of the high temperature for sixteen days, with no decided changes excepting one complete intermission on the seventeenth day.

6th. Absence of rigors and perspiration.

7th. Pus in the urine.

8th. Diarrhœa.

9th. Metastasis in the knee-joint and side wall of thorax.

10th. A complicating angina of the soft palate and arches, with a membrane showing diplococci catarrhalis infection, the same as found in the ears.

Mrs. E. W., 41 years old, a thin and weak looking woman, but complaining of no particular ailment. Two days following the removal of the posterior end of the left inferior turbinate, suffered from earache, the result of an acute inflammation in the right ear. The drum membrane was incised on the third day. The day following the left ear ached, and its drum membrane was incised twenty-four hours later. After the incision of the drum membranes, all pain disappeared, and both ears soon discharged and continued to discharge quite profusely. The temperature from the

* Read before the Chicago Laryngological and Otological Society, December 5, 1905.

onset, I understand, was quite high, with no remissions, and continued so up to the 13th day of the first ear symptoms, when I was called in consultation.

Examination of the patient at this time revealed the following: A frail woman, with a temperature of 102° F., a pulse of 120, full and regular, and respiration 28. Complaining of no pain or discomfort, not in the least irritable or restless, with a clear mind, but with a deafness so decided that one had to shout into her ears to be heard, let alone understood, and this with no history of marked deafness prior to the present illness. Sleeps fairly well and has a desire for food. She was nauseated and had vomited that morning after partaking of some solid food, and there was present a mild degree of diarrhoea. No abdominal tenderness, iliac gurgling or petechial eruption. No cough and chest examination was negative. Patient expectorated freely, but the secretion ran into the throat from the ears, and as a result there existed a membranous angina, not at all painful, involving the soft palate, uvula and arches. There was no history of temperature remission, chills or sweats, but a slight headache. The drum membranes were covered with a thick, necrotic membrane, but each had a large opening through which the pus freely escaped. Exposed bone was detected with a probe in the middle ear of the left side. Percussion and deep pressure about either mastoid process elicited not the slightest pain.

The patient was ordered to the hospital and arrived there with a temperature of 103.6° F. and a pulse of 125.

An examination of the pus from the ears and from the secretions of the soft palate, both showed a preponderance of the diplococci catarrhalis, and that of the throat a few bunches of staphylococci. The blood examination gave 4,000,000 red, 15,000 white, 85 per cent. polynuclear leucocytes, and 80 per cent. hemoglobin. The urine examination showed albumin, but no sugar.

The daily record in the hospital is as follows:

First Day in Hospital, Fourteenth Day of Disease.

	Temperature.	Pulse.
Highest	104° F.	130
Lowest	102.4° F.	118

No pain whatsoever, and no tenderness of any part of the head. Sleeps at intervals. Takes nourishment with relish. Ears discharging profusely. Membrane in the throat. A mild diarrhoea.

Second Day, Fifteenth Day of Disease.

	Temperature.	Pulse.
Highest	104° F.	120
Lowest	102.2° F.	118

Condition same as the day before, excepting that the diarrhoea was controlled and there was some restlessness during sleep.

Third Day, Sixteenth Day of Disease.

	Temperature.	Pulse.
Highest	104° F.	120
Lowest	101.4° F.	108

The ear discharge has slightly lessened and the throat has cleared entirely. Appetite good. Feels comfortable, but there was a mild delirium during sleep. Complains of a soreness about the right knee.

Fourth Day, Seventeenth Day of Disease.

	Temperature.	Pulse.
Highest	105° F.	160
Lowest	96.4° F.	100

Diarrhoea recurred. A slight perspiration was noted by the nurse around the head and neck only. A retention of urine necessitated hot stupes. Examination of this urine showed pus and albumin. Also streptococci and staphylococci. Left mastoid opened.

Fifth Day, Eighteenth Day of Disease.

	Temperature.	Pulse.
Highest	104.4° F.	160
Lowest	102.2° F.	130

Mild delirium. Tenderness in left thoracic region on rubbing. Right mastoid opened.

The following day, shortly after midnight, the patient died.

The first decided remission in the temperature on the night of the third day, and the soreness about the knee indicating a metastasis, caused me to decide to operate the following day. As there was a total absence of focal symptoms, and no earache or a sensitiveness of the mastoid on firm pressure, I had no selection as to which side to open first. The left side was selected.

The prolonged and high degree of sepsis in a very frail woman presented a rather hopeless subject for operation. Nevertheless, with a careful anaesthesia and 1000 c. c. of saline solution, I succeeded in making a thorough exposure of the left mastoid and its

middle ear cavity. Careful examination of the overlying and neighboring parts, prior to operating, failed to show any redness or puffiness of the soft parts, sensitiveness of the bone, tenderness at the exit of the mastoid vein, soreness or stiffness of the neck, or hardness or irregularity along the course of the jugular vein.

After the initial incision back of the ear, the periosteum peeled readily from the bone; the cortex was hard and white and very thin, so that a thin chip with the chisel exposed a series of cells, which, in turn, were white and hard, showing no necrosis whatsoever, but filled with a creamy pus free from disagreeable odor. The cells were so numerous that the exenterating process, when completed, exposed a cavity over three inches in diameter, extending back to the margin of the occipital bone, exposing the entire course of the sigmoid sinus and removing the entire tip of the mastoid process, and also well up into and forward in the zygomatic process. The mastoid antrum and middle ear were freely exposed and included in the completed cavity. Every one of the numerous pneumatic cells contained this creamy pus, but not one showed the slightest evidence of bone disintegration or any discoloration whatsoever. The appearance of this, to me an unusual condition, caused the remark at the time that it resembled a condition where the pus might be injected into a normal mastoid. Only in the antrum and middle ear cavities were there evidences of inflammatory changes, such as thickened and inflamed membrane and granulation tissue. Careful search of the tegmen with a fine probe was made for any opening into the middle cranial fossa, but to no purpose, and the course of the sinus showed no involvement at this point. Its membrane, to all appearances, was absolutely normal.

The condition of our patient at the completion of this operation did not allow of any added danger of prolonging the anæsthesia for an exposure of the right mastoid, although the findings on the left side did not satisfy me as to the cause of the high degree of sepsis present.

The following day the patient was at times in a comatose state, and presented an absolutely hopeless condition, but we decided to perform a rapid exploration of the right mastoid in the hopes of finding some avenue of venous infection. Just before opening the right side, the wound on the left was reopened in order to once more thoroughly survey the field, with the idea that some additional evidence might be found that perhaps had been overlooked the day before. But the entire field looked as clean and dry as any wound could possibly look. The character of the mastoid bone of the

right side was very similar to that of the left, that is, pneumatic, with a very thin cortex, no bone necrosis, but creamy pus within the cells. There was not quite as extensive an array of cells present on this side, hence our resection did not carry us as far backward. The sigmoid sinus, as on the opposite side, was entirely exposed, from the knee above to the bulb below. The membrane had a normal blue-gray color and lustre, was soft to the touch and when emptied of its blood by the pressure of the finger refilled immediately. From this I saw no need of opening it. Bone was removed along the upper and anterior wall of the auditory canal, and the tegmen of the middle ear and antrum were searched for an opening into the cranium, but none was found.

The patient was back in her room an hour after leaving it. Her condition improved so much that she was able to recognize her family, which she did not just prior to the operation. 500 c. c. of saline solution in the breasts were given during the last operation, and an additional 500 c. c. four hours later, but the coma gradually deepened, and she died ten hours later. Unfortunately, no autopsy was obtained.

In view of the fact that no post-mortem examination was obtained, we are led to speculating as to what additional changes may have been present. It is indeed unfortunate that in just such an atypical case as this one we are denied the information, either negative or otherwise, that a careful post-mortem examination would have revealed.

In seeking for an explanation of the septic condition present in this case, we are mindful of the various avenues through which infection may be carried from the middle ear and its antrum, and we know the commonest avenue for the septic material to enter the circulation is by necrosis in the direction of the larger sinuses. This we were unable to discover by a most thorough exposure of the entire region. Nevertheless, it is always possible that even beyond the parts exposed in our dissection, there might have been a point of entrance. Such cases have been reported. On account of the membranous sinus looking so absolutely normal, although it lay entirely exposed for the entire course of its sigmoid portion, I refrained from opening it because I thought nothing would be gained by such a procedure.

A fatal issue may result from the absorption of septic material into the general circulation through the small veins, and has been referred to by Köerner and other writers. Such a condition occurs as a result of an osteomyelitis in other parts of the body. But

in this case there was no osteomyelitis of the mastoid, and the question then arises whether sufficient absorption of septic material could have taken place from the middle ears and antrum to have caused the fatal issue.

I recall at this time a case reported by Barck, already referred to by me in a previous communication, (*Ann. of Otol., Rhinol. and Laryngol.*, Nov., 1900), where the cause of the fatal septic condition was found on post-mortem to be an abscess under the deep fascia of the neck, below the *Splenius capitus* and *Levator scapulæ* muscles, in the posterior cervical triangle, and a direct communication could be traced between the abscess and the lateral sinus through a very large mastoid foramen.

The question as to why an acute otitis occasionally follows operative work in the nose assumes a serious aspect in some cases. The importance of exercising the greatest degree of cleanliness in all intranasal operations is accentuated. Refraining, if possible, from operating at a time of an epidemic of influenza, and delaying such operation in the presence of any acute affection of the nose, or in the presence of erysipelas, is important. Irrigating and douching of the nose, as well as tamponing the nostril, have been considered by some the reasons why such a condition occurs. To my mind it is not in use, but the misuse, of the nasal douche that endangers the integrity of the ears. I always give considerable time in explaining to my patients the manner of using a douche and the reasons therefor.

In the case reported here, I understand from the physician who performed the nasal operation that no such factors as enumerated existed, as far as he was aware, and his experience and ability are sufficient to make him competent to judge rightly in the matter.

A most important feature of the case is the finding of a preponderance, almost exclusive, of the *diplococcus catarrhalis*, in both the aural and oral secretions. A few staphylococci were found in the second and third examination, and the urine, at the end, contained pus, which showed staphylococci and streptococci.

100 State Street.

(For discussion of this article see p. 97.)

**A CASE OF HYPERTROPHIC LARYNGEAL TUBERCULOSIS
WITH EXHIBITION OF MICROSCOPIC PREPARATION
OF TISSUE REMOVED FROM THE LARYNX.***

BY JOHN EDWIN RHODES, M. D., CHICAGO, ILL.

A. W. K. is thirty-six years of age, a carpenter and married. Several years ago he had a swelling in one of his knees, followed two years later by the same condition in the other knee. The effusion in these joints was withdrawn several times about five years ago and iodoform injections were used. The disease was diagnosed by Dr. Senn as tubercular. Treatment was continued for about two years, but was then discontinued and nothing has been done for three years. Both knees are swollen still, and if he is on his feet for long periods or walks excessively he is apt to have pain. No other trouble developed until about a year ago, when he had a dry cough. This was increased somewhat during last winter, but has not been severe and has usually been accompanied with very little expectoration. Lately he has coughed some at night when lying down and complains of irritation in the larynx as causing it. He has complained at times of excessive cough and of raising a great deal but this is not a constant symptom. Last winter he developed hoarseness with a burning sensation in the throat which he describes as "like a live coal in the throat." This sensation has practically disappeared. He occasionally has pain in the chest. It is in both sides of the chest, but perhaps more in the upper part of the right. It is rather indefinite and not severe. There was no pain in swallowing at the beginning, nor has there been since. He became almost voiceless in January of this year and has been speaking in a hoarse whisper since then. Breathing has not been interfered with.

He has always had a good appetite and has been able to attend regularly to his present business, that of a small storekeeper. He has had no feeling of weakness or malaise to any marked extent. His present weight is one hundred forty-six and one-half pounds, and his normal weight was about one hundred fifty. For a time during the summer he lost weight, which he has since regained. He attributed this to frequent X-Ray treatments applied to the neck, which relieved his pain there. During this treatment he lost appe-

* Read before the Chicago Laryngological and Otological Society, December 5, 1905.

tite markedly. He has had no fever, nor night sweats. Temperature has been found repeatedly 98.6° F., occasionally 99° . His pulse rate has usually been from 72 to 80, occasionally 85. In fact he has had little of the systemic disturbance we find in most cases of laryngeal tuberculosis. Typhoid fever when twenty-five years old is the only serious illness he ever had, but he has never been so strong as before that illness.

His father is living and well, aged seventy-five. His mother is living at sixty-eight and suffers from asthma, and he has two brothers and sisters living and well. Two of the father's brothers and sisters died of consumption. His habits have always been good. His drinking is confined to a glass of beer daily and he smokes about one cigar a day.

I have examined his chest, but have never been able to make out any abnormal physical signs. His sputum has been examined, but no bacilli have been found, although it was once reported that an unsatisfactory slide was thought to show tubercle bacilli. I examined this slide later, but could find none. The sputum is not mucopurulent in character.

I have had him under observation since last spring. The conditions changed but little in the interval between then and the middle of September when I made the following notes: The fauces are normal save elongation of the uvula. The nose is free and there is some deflection of the septum.

The epiglottis was then normal; the ventricular bands were much thickened, yellowish white in color mottled with red spots over their surface, hiding partly the vocal cords beneath; the arytenoids were slightly thickened as was the inter-arytenoideus, and on the anterior surface of the latter on the right side a small papillary mass projected, reddish in color. The right vocal cord was pale, thickened, and only its posterior two-thirds could be seen, and about one-half its width was covered by the ventricular band. The left cord also was pale, thickened, and its edge was visible under the thickened band. On phonation the posterior third of the cords and bands remained abducted so that they did not close the glottis.

The appearance of the larynx has changed somewhat, lately. At present the color of the structures have lost the pale mottled appearance to a great extent and are redder in color. The appearance of the right ventricular band which has lost its smooth and even contour is due to the removal of a section with forceps in September. Dr. O. T. Freer very kindly stained and made sec-

tions and examined this tissue in which were found giant cells and lymphoid cells and there were numerous tubercle bacilli. Tubercle bacilli were found entangled in the stroma of the tissue and also in some of the giant cells. These sections were afterward examined at the laboratory of the University of Chicago, where the findings were confirmed and the tissue pronounced tubercular. These slides I now have for microscopic examination.

Ulceration has not been found at any time. The tissue is an hypertrophy of tissue and not a disintegration. Some changes in the epiglottis on the left portion of its tip have appeared lately, a thickening without ulceration.

From the first examination, with the family and personal history duly considered, tuberculosis of the larynx was suspected and a tentative diagnosis made. Usually a laryngeal tuberculosis is easily recognized, but the history of months of comparatively little change, the unimpaired nutrition of the patient, the absence of demonstrable lung disease, the non-appearance of ulceration, and the local appearance of the structures of the larynx in this case, made it not altogether certain until it was confirmed by the removal and examination of the tissue itself.

I consider this a rare form of hypertrophic tubercular laryngitis. Theisen, in his Candidate's Thesis before the American Laryngological Association, in 1903, reports a case and reviews the scanty literature fully. He defines one class of cases in which the characteristic changes in the larynx consist of either a marked hypertrophy or hyperplasia of the tissues, or in which tumor-like formations without ulceration occur. In these cases these tissues do not break down; but ulcerations may occur, especially late in the disease.

Pachydermia laryngis had to be considered principally in differential diagnosis. In the diffuse form of pachydermia laryngis we have an hypertrophy which might be extensive, but this is epithelial in character and ulcerations are often present. Of course there were not characteristic nodes here as found in the common forms of pachydermia.

I have only a suggestion to make as to treatment. Might we expect benefit from a proper climate? Some cases do well under proper conditions when the nutrition is as excellent as in this patient. I should be glad if he could avail himself of favorable climatic and hygienic treatment. It has seemed to me, however, that the surgical removal of this involved tissue might offer some hope of relief, providing it is radical enough. Possibly the oper-

ation of laryngeal tissue and the thorough removal of the involved tissues, which could be accomplished in this way, might prolong his life. Extirpation of the larynx would, be, to my mind, too radical an operation, involving a less desirable subsequent existence, and perhaps no more thorough removal of the diseased tissues.

100 State Street.

Acute Submucous Laryngitis.—M. RUPRECHT.—*Monatschr. f. Ohrenh.*, Berlin, Feb. 1905.

The author reports two cases.

Case 1.—Female, age forty-two. Two weeks after an acute pharyngitis and tonsillitis the patient began to suffer from difficulty in swallowing which she described as "swallowing over a hill," without much pain. There was some swelling of the neck and rigidity of the jaw. The entire side of the larynx, down to the vocal cords was oedematous. The epiglottis was not involved. Under cold applications and ice internally, the condition disappeared in about three months.

Case 2.—A few days after the removal of a hypertrophied follicle from the base of the tongue, the patient had a chill, rise of temperature, pain, and swelling of the epiglottis, ary-epiglottic folds, and the arytenoid cartilage. The swelling subsided after a few days, with the discharge of a large quantity of pus.

The author discusses the differential diagnosis between the various forms of phlegmonous laryngitis, and divides the cases into the following classes: (1) Erysipelatous, characterized by swelling, redness and oedema. (2) Plastic, in which there is a fibrinous exudate with hard indurated swelling, but no pus formation. (3) Suppurative, in which an abscess is formed. (4) Septic, which is characterized by intense septic poisoning and local gangrene.

YANKAUER.

TONSILLAR TISSUE. SHOULD IT BE REMOVED IN ALL CASES? WHY?*

BY GEORGE W. SPOHN, M. D., ELKHART, INDIANA.

In treating this subject, tonsillar tissue has been considered as a part of the lymphatic system. There are two kinds of lymphatic bodies:—those that are regular in formation, and those that are irregular in formation. The former are true lymphatic glands. The latter are mere masses of lymphoid tissue. Both belong to the lymphatic system, and no doubt, both have the same physiological functions.

The true glands consist of a capsule of connective tissue, from which are given off trabeculae of fibrous tissue. The fibrous layers act as partitions and pass towards the center, dividing the gland into various divisions. The center of the gland is made up of a loose and retiform structure. Many of the principal lymphatic glands have ducts leading to and from them. It is often difficult to locate glands and their ducts, unless they are diseased.

The irregularly formed bodies of lymphoid tissue, are made up of a retiform structure, very similar to the center of true lymphatic glands. Instead of ducts, they have sinuses, through which the circulation is carried on. Lymph, circulating through lymph bodies or glands, is modified; toxins and bacteria are either neutralized or destroyed.

The histology of lymph bodies, does not differ in structure, from tonsillar tissue. They bear the same relation to each other, that one gland bears to another. The afferent vessel of one may be the efferent of another. In function and structure, they can not be separated.

The glandular tissue between the pillars of the fauces, in the pharyngeal vault, at the base of the tongue, in the ventricle of the larynx, and within the nares, is generally, known as tonsillar tissue. Formerly the word tonsil, referred only to the faucial glands. In fact, at present, the laity and very many general practitioners know of no other tonsils. Tonsil refers to a small lobe or almond shaped body; as the small lobes on the lower surface of the cerebellum.

* Read before the Tenth Annual Meeting of the American Academy of Ophthalmology and Oto-Laryngology, held at Buffalo, September 14, 15 and 16, 1905.

It does not mean gland. There is no good reason why this glandular tissue should be called tonsillar.

If the various tonsils were known as regional glands, it would simplify the subject very much, and would give the physician greater influence with his patients. The laity views the tonsil, as being just as essential to the general anatomy as any other part. Tonsillitis is such a common disease, that repeated recoveries have removed much of the dread of the disease. Enlarged cervical and lingual lymph glands receive immediate attention, because the laity has been educated, that diseased lymphatic glands are liable to become tubercular. If the word tonsil, would be stricken from our anatomies, and the terms, faucial glands, pharyngeal glands, lingual glands *et cetera*, substituted, the laity would soon learn that a diseased gland in the mouth needs treatment just as a diseased gland elsewhere.

The faucial gland, situated between the pillars of the fauces, resembles in structure the true lymphatic glands. It is covered with mucous membrane and has trabeculae of fibrous tissue that divide it into various divisions. It is composed mostly of lymphoid tissue, contains follicles and crypts, and is very vascular. The pharyngeal and faucial glands have a histology, very much the same. Their lymph circulation is carried on through sinuses. The pharyngeal is often nodular and irregular, even when normal; it is then often mistaken for a pathological condition. The lingual, laryngeal and nasal glands are mere masses of lymphoid tissue. The Waldeyer or lymphoid ring would be entitled to about the seventh tonsil. This would be on a par with the rest of the tonsillar nomenclature.

Tonsillar tissue does not develop in early childhood. The child is born with this tissue, as it is with any lymphatic glands, but it seems to be inactive. Is it possible, that these glands are allowed to remain latent until nature has a demand for them? There are certain pathological conditions of the system, that brings them to active duty, very early. This would indicate that their growth depends upon the needs of the system. Through the kindness of professional friends and their patrons, I have been able to examine the noses and throats of over one hundred infants, soon after birth. They were all children of good families whose histories were excellent. Of this number, not one had a tonsil that was perceptible. There was no elevation, not even a roughness between the pillars of the fauces. To the finger, the mucous membrane in the faucial cavities was smooth but firm. As stated before, the inactive or

undeveloped state of tonsillar tissue seems to apply to lymphatic tissue generally. At the age of puberty, when there is a special demand for glandular activity throughout the system tonsillar tissue is most active.

In families where there is a tendency to catarrhal diseases of the mucous membranes, tonsillar tissue develops early in life. Often at the age of eight or ten, and sometimes as early as three and four. In strumous and syphilitic children it not only develops early, but it is often diseased at birth. I removed the adenoids from two children, respectively, two and four weeks old, in whom the symptoms had been dangerous to life. Would this not indicate that the glands become more active as the general system needs their functioning power? Lymphatic tissue is a cleanser, a scavenger to the whole body. Over taxation of it, does not only cause disease of the glands, and removes their protection to the system, but it also opens the portals for micro-organisms to enter the lymph circulation.

The function of the tonsils has never been positively established. It was formerly supposed, because of the epithelium covering the mucous membrane, that they had no power of absorption; but this has been proven to be otherwise. It has been shown by investigators, that by putting methylene blue in the crypts, and later removing the tonsils, they could demonstrate particles of the drug distributed all through the tonsils. Iodine has been injected into them and later detected in the urine. In fact, it has been suggested by some authors, to treat enlarged cervical glands by injecting iodine into the tonsils. This seems plausible, as the afferent ducts would carry the iodine from the fauces to the enlarged lymphatic glands.

As before stated, the structure of lymph bodies and tonsillar tissue is very much the same. Again, one of the functions of lymphoid tissue is to arrest and destroy toxins and micro-organisms. This, then, would show two quite definite functions for tonsillar tissue: 1. Absorption. 2. Arrest and destruction of toxins and pathogenic micro-organisms.

It is claimed by some writers, that the tonsils secrete a viscid fluid, that aids lubrication, deglutition and digestion. This may be true, but it has never been proven, and it is doubtful if it can be. As glands, tonsils are physiological. Their minute anatomy can not be disputed, though there are some who doubt their physiology.

If tonsils are to stand as guards in the oral cavity to prevent the entrance of micro-organisms into the circulation, then they should not be sacrificed by the surgeon if he can avoid it. It is possible

that the surgery of the tonsils has been overdone. It is limited almost entirely to the faucial and pharyngeal regions. Inflammation and hypertrophy do not necessarily, indicate removal. The wholesale extirpation of tonsillar tissue should be discouraged. Ordinary inflammations can generally be cured by treatment. Inflammations are due to micro-organisms, of which the streptococcus, staphylococcus, diplococcus and Klebs-Löffler bacillus are the most frequent.

Very often tonsillar inflammations are indirectly caused by gout, rheumatism, digestive and menstrual troubles. Rheumatic tonsillitis is a common disease. It is a general disease with a localized trouble which should have both internal and local treatment. The local treatment should be continued, after convalescence, otherwise, they will become chronically inflamed and fail to perform their physiological functions.

There are many remedies that are useful in overcoming inflammations; but perhaps, no one remedy is so useful as iodine. This in glycerin, which is quite frequently used, can be of but little utility in any inflammations. Because, of its hygroscopic action, glycerine absorbs moisture from the tissue, that is it establishes exosmosis. This will reduce inflammations, but through the action of glycerine and not the iodine. The pure tincture is a desirable preparation which can be applied daily to inflamed tonsillar tissue with excellent results. It is so penetrating, that one application will often abort an attack of tonsillitis, when it is only local. Its application is very painful, unless it is preceded by an application of cocain.

Repeated acute attacks of tonsillitis, unless properly treated, will result in a chronically diseased tonsil, from which there is no relief, only enucleation. But the removal of the faucial glands, does not wholly stop inflammations in and around the faucial cavities. Clinical experience, has shown that there is less pharyngeal trouble after a thorough enucleation than before. Still, there are certain constitutional conditions which manifest themselves in pharyngeal inflammations.

Experience has taught that it is rare to find a tonsillitis and a diarrhoea at the same time; but it is a frequent occurrence to find a constipation associated with inflamed glandular tissue. Constipation, or auto-intoxication, is often the cause of tonsillar inflammations; or it is the result of micro-organisms, taken into the general system, through diseased tonsillar tissue. If the former, no doubt

it is caused by the absorption of toxins from the alimentary canal. But why should the glands in the oral cavity become inflamed when the disturbing causes of the disease entered the system elsewhere? There may be a susceptibility, or there may be an idiosyncrasy. It is also possible that it is due to the phagocytic action of glandular tissue. From their exposed positions, tonsils are more irritated by foods and air than other glands, hence they would be more liable to disease. One tonsillar inflammation predisposes to other attacks. If toxins and micro-organisms, circulating in the blood, cause tonsillar inflammation, then it must be due to the efforts of the glands to neutralize or destroy the poisons. If this be true, then, tonsillar tissue has another function, viz.: phagocytic action on auto-toxins.

If tonsillar tissue has such important physiological functions, then it should not be sacrificed to the knife unless absolutely necessary. Tonsillotomy is such a common operation in the eyes of the general physician that it does not have the dignified standing it deserves. If done correctly it is not an easy operation; nor is it devoid of danger. If the indifferent surgeons would enucleate and not decapitate, they would have more respect for the operation. The good results would more than recompense them for the extra trouble and anxiety.

The most active period of tonsillar disease, is from sixteen to twenty-six. The least active, is during childhood and old age, or before ten and after fifty.

If oral glands become chronically diseased, if they remain hypertrophied or hyperplastic, removal only, will give relief. The question is often asked, should the whole faucial tonsil be removed? All the lymphoid tissue should be removed, but the fibrous portion of the gland should be retained if possible. If the hilum and all the fibrous portion of the gland at the base is allowed to remain, there will be less contraction. If the enucleation is complete, that is if the whole gland is taken out, down to the muscle fibers, the pillars often become so contracted, that they form a pouch for the lodgment of food. The contraction might also, interfere with the physiological functions of the pharyngeal muscles. There should be left enough of the hilum to partially fill in the space between the pillars.

Tonsillar tissue should be removed: (1) when its pathological condition can not be cured with treatment; (2) when it obstructs the nares and oral cavity, or interferes with their physiological functions.

A small diseased tonsil, very often causes more trouble to the general system, than a large mass. Diseased adenoids may not obstruct nasal breathing, and yet may cause digestive troubles that impair the general health. It is a common thing, to find a severe cough caused by enlarged lingual tonsils. Dependence can not be put upon the subjective symptoms of a patient, whether a tonsil is diseased. The trained eye of the experienced physician should be the guide, whether it is diseased and whether it needs operation. Lymphatic glands or tonsillar tissues that are diseased, lose at least, in part, their physiological functions. Instead of standing as a guard, to arrest and destroy micro-organisms, they supply a soil for their propagation, and encourage their entrance into the system.

Removal of diseased tonsillar tissue, that needs removal, should be done early and not postponed. As before stated, let it be known to the patient, that diseased glands in the mouth, need as prompt attention as do tubercular glands, in any part of the system.

It is claimed by investigators, that the chief point of entry to the human body for tubercle bacilli is the faucial gland. Passing from the tonsil, through the lymphatics, they reach the glands of the mediastium.

There are also those who believe in the germ theory for rheumatism, who claim the entrance to the general system of the rheumatic poison, is through diseased tonsils.

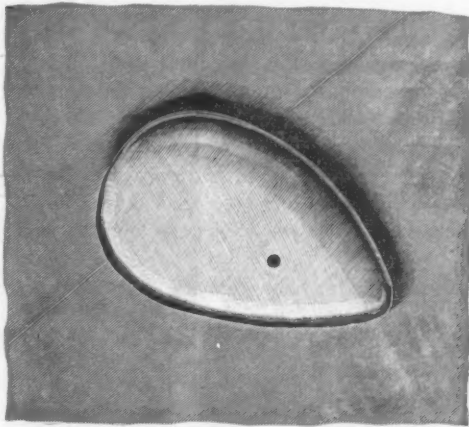
When tonsils are diseased, they fail in their proper functions; they interfere in the physiological functions of the oral cavity and the nares; they lower the vitality to the general system, and thus destroy the protection against bacterial invasion. Knowing this, there is no reason why diseased lymphoid tissue should not be removed.

There are many useful instruments in the market, and many good methods for the removal of tonsils. It matters not so much what instruments have been used, or what methods have been employed, if the operation has been done thoroughly, and the desired results have been achieved. Good instruments are necessary, but success depends more upon the operator than upon the instruments.

AN AURICLE CAP.

BY ALICE G. BRYANT, M.D., BOSTON, MASS.

The auricle cap shown in the accompanying figure will be found an useful adjunct in treating many conditions of the external auditory canal and middle ear, as for instance, the acute and chronic suppurative conditions of the middle ear where spontaneous rupture of the drum has occurred, or where a surgical incision of the drum is necessary, or further, where a paracentesis is done as the initial step



Dr. Bryant's Auricle Cap.

in a mastoid operation. It is made of thin rubber and has a cape of the same material extending in all directions round the ear. The cape extends to a distance of 2.5 cm. in front, below and above, and 5 cm. behind the ear. It serves as an aseptic pad for the support of the physician's fingers in examinations and operations upon the ear, and thus sterile cotton applicators may be kept free from contamination by the physician. A small perforation in the auricle cap opposite the external auditory canal permits a speculum to be inserted in the canal, which is also thus held in place.

These caps are made for the right and left ear in two sizes, and being of elastic material will adapt themselves to auricles of various sizes; and, moreover, they can be readily sterilized. Their cost being moderate would permit one to have several pairs. They will be found useful in office and clinical practice, and especially so in the latter, where the personal cleanliness of the patient is below par, or where in clinical teaching the same patient is submitted to many examinations.

The caps may be had of Codman and Shurtleff of Boston, Mass.
416 Marlborough St.

Acute Septic Inflammation of the Throat and Neck.—SIR FELIX SEMON.—*Brooklyn Med. Journ.*, Jan. 1905.

In a very interesting and instructive lecture upon the important topic, the distinguished authority calls attention to the serious nature of these inflammations.

The most prominent pathogenic micro-organism which is responsible for these infections is the streptococcus pyogenes, though this organism belongs to a class of which the members are interchangeable.

The forms of inflammation produced by these various bacteria depend upon their quantity, virulence, and the nature and condition of the tissues of the body they invade. There is no artificial difference between two inflammations, because in one you see a serous exudation, and in the other a purulent one.

No matter where the primary focus is located, the septic nature of the disease is the same, and we should avoid complicating the terminology of this affection.

It is characteristic of these cases that development of symptoms takes place very rapidly, and retrogressive changes occur with equally astonishing rapidity.

The prognosis of these inflammations is very dubious at all times, and our efforts should be directed towards finding an antistreptococcus-serum, prepared from a mixed culture of various streptococci.

LEDERMAN.

A NASAL POLYPUS HOOK.

BY ALICE G. BRYANT, M.D., BOSTON, MASS.

The nasal polypus hook shown in the accompanying figure is a modification of the Spear stapes hook. The handle is $6\frac{1}{2}$ cm. long, attached at an angle of 45° to an arm, as thin as possible consistent with strength, $10\frac{3}{4}$ cm. long, terminating in a perpendicular hook with a prominent convex curve $2\frac{1}{4}$ mm. long. Its value has been demonstrated in removing crusts and foreign bodies from the nose, in withdrawing packing in cases of nasal hemorrhage, and, above all, in drawing a polypus through the loop of the nasal snare. The more common method is to use forceps in such procedures, at best an unsurgical and harsh method. The nasal hook may be depended upon to do the work required. We know how sensitive the nasal passages are, for even the use of the nasal probe may be painful.



Dr. Bryant's Nasal Polypus Hook.

We claim that, in the use of the nasal polypus hook, there are the following advantages over the forceps:

- a. A clearer view of operating field.
- b. Less injury to healthy tissue.
- c. Less bruising of parts in field of operation.
- d. Avoidance of unnecessary hemorrhage.
- e. Sufficient room to pass instruments.
- d. Greater saving of time.

The hook is made by Codman and Shurtleff of Boston, Mass.

416 Marlborough St.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Regular Meeting, November 22, 1905.

LEWIS A. COFFIN, M. D., Chairman.

PRESENTATION OF CASES.

Bilateral Recurrent Laryngeal Paralysis Due to Mediastinal Pressure. By M. D. LEDERMAN, M.D.

The patient had been seen but twice in the last two weeks. For about ten weeks or three months he had noticed that he was growing gradually hoarser, following a cold. He suffered pain on swallowing with a tendency to regurgitation of food, although if he ate slowly the food would pass into the stomach pretty well. He was a well-nourished man of 50 years of age. On examination, the cords were found to have no movement and were in an almost cadaveric condition. There were enlarged glands on both sides of the neck, particularly over the left side. Some internal pressure was suspected and the man was referred to the Internal Medical Department. Dr. Manges went over the chest twice and stated that there were evidences of a multiple lympho-sarcoma of the mediastinum. The patient had been taking iodide of potash and was now put upon arsenious acid treatment, and says that he has felt decidedly better during the last week. He absolutely denies any specific history. On closer examination his knee jerk is slightly exaggerated, but he does not seem to suffer from any neurotic symptoms. He is aphonic but has quite a little breathing space, in spite of the affection being bilateral. The question was what would be the ultimate result. Dr. Manges intends to keep him under observation and to give him the benefit of the x-ray treatment.

P. S.—Since the patient was presented at the meeting of the Laryngological Section he has been under Dr. M. Manges' care at the Mt. Sinai Hospital, and the doctor has recently informed me that the x-ray examinations show distinctly a multiple growth of the mediastinum. The patient has more difficulty in swallowing and the glandular involvement is gradually progressing.

DISCUSSION.

DR. GLEITSMAN said that some of the other members had seen the case and from what Dr. Lederman had said it could be assumed that there was a tumor in the mediastinum. The question of interest to Laryngologists was the position of the cords. As far as he could see they were immovable and about three or four millimetres apart. (He looked at the case as one of bilateral abductor paralysis due to recurrent paralysis.) In the cadaveric condition, the cords would, in his opinion, be more remote from the median line. He thought it of less importance whether it was called an abductor or a recurrent paralysis, for in either case the ultimate issue would be the same if the condition were not held on abeyance.

DR. FREUDENTHAL said that he agreed with Dr. Gleitsman that it was not the condition seen in paralysis of the recurrent nerve. Nor was it like paralysis of the abductors. In that picture, the vocal cords close distinctly on inhalation, but here that is not the case. In regard to the etiology, he thought there might be a tumor, but he did not think it an operable case. In certain cases he thought that tumors in this vicinity could be operated upon, but care ought to be taken to avoid mistakes. He cited a case where two men had made a diagnosis of carcinoma, but when he himself had examined the larynx by transillumination he found a distinct pulsation in the trachea. The patient later died suddenly, and upon autopsy it was found that he had an aneurysm of the aorta. The doctor said he thought it would be well to examine this man for an aneurysm.

DR. ABRAHAM said that only the previous afternoon a patient had come to Dr. Delavan's Clinic presenting some very interesting features. He was a young man and on examination of his larynx "I diagnosed a bilateral abductor paralysis. The left vocal cord presented a complete abductor paralysis and the right an incomplete abductor paralysis. Generally in a typical bilateral recurrent paralysis there is a loss of voice. In this case the man had a very good voice and very little dyspnoea."

DR. EMIL MAYER said that the case was a very interesting one, for it was unusual to see a double fixation. The fact that the pressure was on both sides gave the man a measure of relief. If the paralysis was one-sided only, he would be in danger and would require tracheotomy if sudden dyspnoea arose. In his present condition he was safe from sudden death, but his condition was very grave, the evidence pointing to a large mediastinal tumor.

Epithelioma of the Larynx. By JOSEPH H. ABRAHAM, M.D.

This patient came in to Dr. Delavan's Clinic last April. He is a Russian, 32 years of age, married, has two children. He never suffered from any of the infectious diseases of childhood. When he was 22 years old he had an abscess in his throat which ruptured. His family history is negative. Denies any venereal history. He drinks one or two glasses of whiskey daily and smokes freely. He suffers from hoarseness, and some cough, but no pain. He has a muco-purulent expectoration and sometimes it is tinged with blood. Examination of his sputa was negative and his chest is free of any pulmonary involvement. On examination, the anterior half of the larynx was involved and extended more to the left side and down as far as the second ring of the trachea. The mass was irregular and presented a warty surface. In the mid-line and just below the vocal cords the major portion of the tumor was visible. Slight dispnoea. A small portion of the tumor was removed for examination and the pathologist returned a diagnosis of epithelioma. The piece which was removed seemed to interfere with his respiration, and after its removal he seemed to breathe better, and his voice was somewhat improved. He was placed under iodide of potassium, but was not seen again until the latter part of September, when he returned to the clinic. The growth had not increased in size and he suffered no pain. He had only taken one bottle of the iodide. Again a small piece was removed and sent to the pathologist, who again returned the report of epithelioma. It appears to be of an early stage, but of the diagnosis of cancer there can be no doubt.

At the present time the patient is taking 30 drops of a saturated solution of iodide of potassium and is having x-ray treatment to his throat. He shows some slight improvement, and the growth has been practically at a standstill. It was a very interesting case indeed. The patient was a young man with a family, and the question of radical operation was a grave one.

DISCUSSION.

DR. EMIL MAYER said that he thought there could be no question as to the diagnosis. Two examinations had been made and both agreed, and it seemed to him that the patient should be informed of the urgent need of operation.

DR. ABRAHAM (closing) said the patient would not consent to a radical operation. He felt himself that every possible means should be tried before this was resorted to. He intended to keep him on iodide of potassium for a while. The case clinically presented

some very interesting features. He intended to keep the patient under close observation and would report the case at some future meeting of the Section.

Acute Frontal and Ethmoidal Empyema. (Dr. Coffin's Case.)

By T. J. HARRIS, M.D.

Dr. Coffin operated upon this patient in January, 1905, under urgent symptoms. At the time of operation the patient had been under observation for a short while. She had choked disk and other meningeal symptoms. The operation was a typical Killian one, and illustrates particularly the preservation of the middle turbinated bone which was not removed. The drainage was secured through the bulla ethmoidalis. The slight scar shows a very perfect result for a frontal sinus operation. The incision, however, was carried a little too far inside the orbit and the lachrymal sac was wounded and later had to be excised. At a little distance the scar could not be seen. Dr. Harris said that when he last saw the patient there was no secretion in the nose whatever, though this evening one of the Doctors present said he had observed a slight secretion. This was as good an illustration of the Killian operation as had been presented before the Section, and showed that it was not always necessary to remove the middle turbinated bone, make a tremendous hole, and have a disturbing scabbing in consequence.

Osteoma of the Antrum. By W. FREUDENTHAL, M.D.

Dr. Freudenthal said that he had demonstrated this case before the Section about two years ago, and thought the members would be interested to see the progress of the case. The young lady is now 18 years of age and her trouble began about nine or ten years ago. Her right cheek began to swell and grew with her growth, always getting larger. Two years ago the Doctor had two such cases under observation, but had seen none since. This growth seems to have increased somewhat in the two years since he first saw the patient. The growth feels very hard to the touch, and the sinus apparently is extended by the tumor. Inside there was some slight swelling. The patient can breathe freely through the nose; the naso-pharynx is free. Dr. Freudenthal said that it appeared to him to be an osteoma or osteo-sarcoma of the antrum, probably the former. The question was whether or not an operation should be performed. Two years ago he had advised operation, and he still felt that it could be done better now when she is young and strong, but the patient objects. He would like to know the opinion of the Section in regard to a radical operation.

The Doctor said that he had also tried to induce the other patient with a similar affection to come to the Section for inspection, but he had refused. He also had objected to an operation.

A Case of Operated Sarcoma of the Maxillary Antrum, with Demonstration of Patient and Specimen. By MAX TOEPLITZ, M.D.

The patient, a young woman of 21, first presented herself at the end of July, 1905, complaining of obstruction of the left nostril. Upon examination it was found to be entirely blocked with polypi. The left cheek was also swollen. Dr. Toeplitz removed the polypi, but to his surprise a few days later the nose was just as much blocked up as before. He accordingly sent the patient to the Sydenham Hospital for observation. The hard palate was swollen and bulging into the mouth. It was doughy to the touch and reached over to the angle of the jaw back of the teeth. The patient was put under narcosis. The left nostril was found to be obstructed, also the posterior naris and the naso-pharynx. The swelling extended over the median line of the pharynx. Upon transillumination the left antrum was found entirely dark. An exploratory puncture through the lower nasal meatus revealed no pus. The return flow was thin and clear. There was a tumor filling the antrum and extending into the naso-pharynx and over to the cheek. The malignancy of the growth was established by microscopic examination, and it was pronounced to be an extremely malignant type of mixed sarcoma. On the 21st of August Dr. I. Levin performed a radical operation, cutting open the left side of the face and removing the upper jaw and the tumor.

DISCUSSION.

DR. LEVIN said that the patient came to his service very cachectic and so weak that he feared she would not be able to stand the severe operation. In order to reduce the hemorrhage to a minimum, he first ligated the external carotid; to reduce the chance of secondary aspiration pneumonia, the patient was given morphine before the operation, and during the excision of the bone very little general anæsthesia was used. The operation was done by the Dieffenbach incision, the jaw removed, and the cavity packed with sterile gauze. The incision of the skin closed and the patient made a fairly good recovery without any untoward event. The packing was removed on the tenth day, there was no hemorrhage, and the patient is in good health. Since the operation three months have passed. The speech and deglutition are fairly good.

The mortality in this class of cases is about one-third, and the chances of recovery very slim; notwithstanding this, the operation, in the opinion of Dr. Levin, is justified in cases of malignant growth of the upper jaw. There are ten chances out of a hundred for cure, and a fairly good chance to prolong the life of the patient. Without the operation the average length of life does not exceed three or four months after the diagnosis of sarcoma of the upper jaw is made, and towards the end the condition causes great suffering; while a radical operation, even if not perfectly successful, very frequently alleviates the suffering on the last days.

DR. EMIL MAYER said that he wished to take exception to a statement made by Dr. Levin that one of the advantages of the operation of removal of the entire upper jaw for malignant disease was that when the end came death was easier for the patient, if the patient had been operated on.

This, in the speaker's experience, was not the fact. He had seen a patient so operated on a year after recurrence had set in, and the patient was so horribly disfigured that he barely bore the semblance of a human being.

He did not wish to decry the operation, but he did not think that we should expect that when recurrence came the final result would be any better than if no operation had been performed, the advantage being in added comfort for the time being.

DR. TOEPLITZ (closing) replied that in this instance the patient had been suffering for a year and a half before coming under his observation. The pain was intense and continued up to the operation, but was then relieved. She complained of constant and distressing pain in the face and ear. He had considered the question of disfigurement and feared that it would be very marked; but he thought that the result was not at all bad, and that with the exception of the scar under the eye there was really no disfigurement. The patient now led a very tolerable life and was certainly very much better off than before the operation. Of course, a recurrence might take place at any time, but thus far, three months after the operation, there were no signs of it.

Destruction and Cicatrices of the Pharynx and Epiglottis of a Non-Specific Nature. By L. M. HURD, M.D.

This case presented the typical characteristics of a tertiary syphilis, and Dr. Hurd said that he labored under that diagnosis for about a month, but he had been forced to the conclusion that it was not syphilis at all, but that the condition was entirely the result of a severe attack of scarlet fever the patient had when a child. Both ears became infected, the mastoid became thoroughly ne-

crossed, and the case is one showing nature's method of doing the radical operation. He said that he thought the members of the Section would be interested in seeing the throat. It had the typical cicatricial bands of tertiary syphilis, with perforation of the right posterior pillar and loss of a portion of the epiglottis, but was simply the result of scarlet fever.

Syphilitic Empyema of the Ethmoidal and Antral Cavities, with a Report of Four Cases. By JOSEPH H. ABRAHAM, M.D.

DISCUSSION.

DR. McDONALD said he took issue with Dr. Abraham in regard to the method of giving iodide of potassium. Why lose time in giving four or five grains at a dose? Why not start with 20-30 grains and run up to the point of toleration? "I believe the stomach tolerates larger doses in this stage better than smaller. When there is an idiosyncrasy to potassium salts, I resort to hydrag. proto-iodide, increasing daily to the point of maximum toleration. This acquired, I then go back to mixed treatment and hold the patient on the maximum amount. That will show results."

DR. HURD said that within the last year he had seen four cases similar to those described by Dr. Abraham—with extensive necrosis of the bone, of the wall of the antrum, ethmoidal cells, and sphenoid. In one of these cases which gave a history of primary chancre fourteen months before, with some months of treatment, he operated and removed all of the maxillary bone except the malar process, all the ethmoidal cells, the anterior wall of the sphenoid, part of the bony septum and the median wall. The case was then put upon large doses of potassium iodide, but the tissues continued to break down and become necrotic. He then operated again and removed a piece almost as big as a walnut, and changed the treatment to injection of salicylate of mercury, when the case immediately improved. An interesting point in this case was that the tissue was submitted to a pathologist who made a doubtful diagnosis of sarcoma. I found it to be typical syphilis. Two other cases had presented themselves with necrosis of all the ethmoidal cells, but with no odor. Another case had come to his office in September with necrosis of the middle turbinate and right ethmoidal sinus, without odor. Still another case he had seen in the last few days at the Manhattan Eye and Ear Hospital, a young man who had presented himself with a profuse purulent discharge from the right side of the nose. On examination the pus was found to be coming from the frontal duct and the antrum, and around the antral orifice and middle meatus. The granulations suggested syphilitic granuloma. Dead bone was found in the

sinus and the antrum was full of tough granulations. Some of this granulation tissue near the orifice was sent to the pathologist, and he reported it to be syphilitic granuloma. It was a question with him what should be done with this case. The patient had extensive necrosis of the sinus and his antrum is full of granulomatous tissue. Would he get well if the antrum was simply drained and he was put under systemic treatment?

DR. ABRAHAM (closing) said that he fully agreed with Dr. Delavan on the subject of conservative surgery. He then cited the case of a physician who had consulted him a short time previously, having infected himself performing a surgical operation on a syphilitic subject. This physician has a gumma of the hard palate which had broken down and ulcerated, leaving a sequestrum. This sequestrum was oval in shape and was 1.5 centimetres in length, but fortunately was situated on the median line. Here was the case of a physician who had seen many cases of syphilis, and yet he allowed a condition of this kind to go so far as to ulcerate. Dr. Abraham advised him to take iodide in small doses and gradually run it up, and not to touch the sequestrum at all, except to keep it cleaned with an antiseptic solution. This advice was followed, and the physician reported a few days ago, and it was surprising to see how the gumma had diminished; a probe could no longer be passed into the nasal cavity. Later on, when the gumma has entirely disappeared he expected to remove the sequestrum and do a slight plastic operation. He thought that this was conservative surgery, which had resulted in great benefit to the patient. Dr. McDonald had spoken of large doses of iodide, but the method of beginning with small doses had proved most successful with him. He had seen many cases that could take as much as five grains to begin with, but if given large doses could not retain them. In very few cases had he carried the dose higher than 75 grains, and he had frequently allowed patients to stay on one dose for two days before increasing it by a grain. He thought that when large doses of iodide of potassium were given much of it was eliminated through the urine and mucous surfaces and that the body did not absorb it entirely.

In the case described by Dr. Hurd, he may have found the radical operation necessary, but in none of his own cases had he operated inside of two to two and a half months. He preferred to get as much absorption as possible before removing the diseased tissue. When tissues were once removed they could not be replaced.

Replying to Dr. Quinlan's remarks, he could not feel that such radical procedure was wise to begin with. He preferred to get as much absorption from the iodide as possible. We might have a gumma that has not broken down and could be absorbed, and there would be no occasion for radical procedure. While abroad this summer he had been impressed with the fact that the surgeons seemed to be coming around more and more to conservative treatment in cases of empyema of the antrum. In these antrum cases which he had just reported the openings had been 2 ccm. in size, and he thought that a pretty good opening, and he could make as much exploration through that as he required, where as in operating through the canine fossa it remained open for infection. There were many pros and cons in all methods, but in his hands conservative surgery in syphilitic empyema had proved most successful.

PRESENTATION OF NEW INSTRUMENTS.

Antrum Canula and Gauze Packer.

Dr. Abraham also presented for inspection the needles which he had devised for operations in this region, and a specially devised silver canular for washing out the antrum, and a gauze packer.

New Forceps. By J. J. McCoy, M.D.

DISCUSSION.

DR. GLEITSMAN remarked that he had obtained one of the McCoy down-biting forceps from Ford and had found it excellent for the purpose for which it was intended.

DR. ABRAHAM said that the straight forceps were similar to a pair that he had seen abroad with fenestrated blades. These not being fenestrated he considered a great improvement, as they required less space and were longer and not so bulky and very strong. He had planned to devise something in this direction himself, and thanked Dr. McCoy for saving him the trouble.

Non-Leakable Cut-off.

DR. YANKAUER showed a cut-off which he had devised to obviate the annoyance resulting from leakage, and explained its advantages and the method of using it. He had used it now for some months and it had shown no sign of leaking.

In this device the valve-stem is held against the valve-seat by means of a spring instead of a screw. The pressure of the spring being constant, the contact is maintained continuously, in spite of any wear which may take place from friction. The entire apparatus can be taken apart and reassembled without the use of tools, as there are no screws or other parts to adjust. It was made by Messrs. Tiemann & Co. of this city.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular Meeting, December 5, 1905.

WILLIAM L. BALLENGER, M. D., President.

A Case of Laryngeal Tuberculosis, with Exhibition of Microscopic Sections of Tissue Removed from the Larynx. By JOHN EDWIN RHODES, M.D. (*Published in full in this issue of THE LARYNGOSCOPE, page 69.*)

DISCUSSION.

DR. OTTO T. FREER: The sections in Dr. Rhodes' case had necessarily to be made from a small piece of excised tissue. Nevertheless they clearly showed the characteristics mentioned of a tubercular process leading rather to connective tissue hypertrophy and resistance on the part of the invaded tissues than to their disintegration. Probably in this case the bacilli are either of slight virulence, or, more likely, the susceptibility of the individual to tuberculosis is slight and his resistance great, so that his laryngeal structures respond by hyperplasia rather than by disintegration to the advance of the tubercle bacilli. The laryngoscopic image was deceptive. When I first saw the patient, it was impossible to make a diagnosis, a thing that is very rare in tubercular laryngitis where the appearances are usually quite characteristic.

A distinction should be made between tubercular hyperplasia as shown in this case and the common characteristic chronic inflammatory edema of tubercular laryngitis. The latter has a smooth gelatinous appearance while the surface of the tubercular hyperplastic tissue is nodular and warty. The verrucous masses seen on the cords and ventricular bands in Dr. Rhodes' case are analogous to the larger collections of tubercular new growth occasionally seen in the form of a tubercular tumor or tuberculoma.

DR. WILLIAM E. CASSELBERRY: I note especially in this report the statement of a well demonstrated case of laryngeal tuberculosis without evidence of pulmonary involvement. There are many cases in which that statement has been made, but in which, on further thorough examination or repeated tests, it subsequently evolved that there was a focus in the lungs, or in a short time after the examinations such a focus developed, indicating that it had been there previously, though undiscovered. Doubtless the

pulmonary focus may be quite limited and of the "latent" or slowly progressive type, as in a case recently, long under my observation, a woman 50 years of age, who had also tuberculosis of the larynx of the distinctly hypertrophic form as described by the essayist. In a somewhat extended experience with tuberculosis of the larynx I have yet to be satisfied that it really exists unassociated with pulmonary tuberculosis, so I believe it to be important that such reports should be amplified and emphasized in a more convincing way, as to whether there is or is not tuberculosis of the lungs antedating the tuberculosis of the larynx, or co-existing with it. Of course, this case is not presented, I understand, as one of actual primary tuberculosis of the larynx, but as we are accustomed to view tuberculosis of the larynx as being secondary to the pulmonary disease, if it really does occur secondary to some other focus far removed, as in the knee joints of this case, it assumes almost as much interest and novelty as if it were actually primary in the larynx.

Regarding the hypertrophic type of tuberculosis of the larynx, I cannot feel that it is as infrequent as the paucity of literature would indicate. Inasmuch as some degree of hyperplasia is common to all cases, in conjunction with ulceration, the cases in which the element of hyperplasia reaches extreme limits, ulceration being deferred, would seem to present a variation in degree rather than in kind. However, they are seemingly of a less virulent nature and hence of slower course.

Regarding treatment, I am convinced that in cases of laryngeal tuberculosis much benefit is derived from an outdoor life and superalimentation. I have seen them in Colorado, California, Texas, and Arizona often continue to live for years in a state of comparative comfort. The stimulating influence upon tissue metabolism has a favorable effect upon the larynx, although perhaps less than upon pulmonary disease alone. I formerly subjected these patients to curettement, aiming to excise the tubercular deposits, as far as I could, but I never was satisfied that I did aught but ill to my patients unless it was a well circumscribed lesion which could be made the point of attack. Local treatment when designed to palliate exhausting symptoms is valuable.

DR. E. FLETCHER INGALS: My experience has been something like that of the last speaker with reference to treatment. The results, I think, are practically always dependent upon the condition in the lung, as foci in these two locations nearly always go together. Usually, anything that will improve the pulmonary condi-

tion will likewise improve the laryngeal trouble, and while local treatment of the larynx apparently helps a considerable number of the cases, I doubt very much whether the majority get any real benefit from it.

The suggestion made by the author as to laryngo-fissure in this case, for the removal of the tubercular tissue, seems to me a little radical. I was unable to see the case perfectly on account of not having proper glasses with me, but I understand that the ventricular bands on both sides are involved, that the posterior commissures and the arytenoids are affected, and that there is also involvement of the epiglottis. If this is the case, it would require removal of the larynx to get rid of the tubercular tissue. I can hardly conceive of a case of laryngeal tuberculosis in which this operation would appear to me likely to improve the patient's chances.

In my observation of the more radical forms of treatment mentioned by the last speaker, as a rule, patients are not benefited by them; and as nearly all patients with laryngeal tuberculosis have diseased foci in other organs, I can see no reason for expecting much improvement from removing more or less tissue from this particular locality. I think the conservative treatment of tubercular laryngitis, with forced feeding and good hygienic conditions, is likely to accomplish much more than any other method. I have for years used in many of these cases trichloride of iodine as a spray, with apparent benefit; but I have at the same time given the patient the symptomatic constitutional treatment indicated for pulmonary tuberculosis.

I have seen one or two cases that appeared to be primary tuberculosis of the larynx, in which I could not discover any involvement of the lungs.

DR. F. G. STUBBS: Dr. Casselberry's remarks remind me of a case which I brought before the Society last February. I presented the patient because apparently it was a case of primary tuberculosis of the larynx, and I called attention to the fact that I would make a further report. She first came under my observation a year ago last month, hence it is about thirteen months since I first saw her, at which time a thorough examination of the lungs failed to reveal anything that I could determine was pathological. I have examined the lungs many times since, the last time about three weeks ago, and at that time the lungs were apparently as clear as they were at the first examination. She had lost weight, from about 112 or 115 to 97 pounds, when I first saw her, on account of pain in swallowing interfering with her ability to eat.

After the pain was relieved she rapidly improved, and not only regained her former weight, but went up to 118 pounds.

The condition presented in the larynx was apparently an hypertrophied condition, or granuloma of the ventricular bands of both sides. This I removed and the parts apparently healed perfectly. She went along for three or four months, until about August, when apparently the tubercular process began to affect the right vocal cord, and a condition of granuloma presented itself there which has recently shown signs of breaking down. Up to this time her health has been perfect. There is no history of tuberculosis in the family, and on account of the fact that her general condition is so good, and the tendency toward a rapid breaking down of this granuloma, I have had under consideration advising her to have a thyrotomy done for the removal of the parts affected.

As to the question of sending her to a different climate, her general condition seems to be so good in this climate that it is doubtful whether other climatic conditions would make any difference in her case.

DR. J. HOLINGER: I want to offer a suggestion for the treatment of Dr. Rhodes' case. I have treated a large number of cases of tubercular laryngitis at St. Anne's Hospital with ignipuncture, using a galvano-cautery with three to six little points. This method of treatment has given great satisfaction, and I would suggest that the doctor try it in this case. It is not disagreeable. After you have cocaineized the larynx with a 10 and then a 20 per cent. solution, it is easy to let the cautery burn about three millimetres into the tissue. The reaction is very slight, and the treatment gives almost no discomfort to the patient. After two weeks he will see the tubercular points disappear; a scar forms, and the whole part shrinks.

DR. RHODES (closing the discussion): In the presentation of this case, it was far from my intention to report it as one of primary tuberculosis of the larynx. I am familiar with the almost endless discussion as to whether there is such a thing as primary tuberculosis of the larynx. This subject has been reviewed time and again. I presented this case as a somewhat rare form of tubercular laryngitis—the hypertrophic form without ulceration. Whether or not the lungs are involved at the present time, or will be implicated in the future, is a question that time only will settle. I have made repeated examinations and have not been able to make out any disease of the lungs at all, although it is quite possible

that they are already the seat of an infiltration that cannot yet be demonstrated by physical examination.

Notwithstanding the statement made by Dr. Casselberry that it is a common form, I am obliged to differ with him, and would refer again to Theisen's enumeration of cases, in which he gives twenty references, of a pure hypertrophic condition of tuberculosis of the larynx. The common form of tubercular laryngitis is frequent and easily diagnosed; but cases of the purely hyperplastic variety, with little systemic disturbance, are rare, and I present this case as such.

Vicarious Bleeding from the External Auditory Canal. By GEO. E. SHAMBAUGH, M.D. (*Published in full in this issue of THE LARYNGOSCOPE, page 53.*)

DISCUSSION.

DR. J. HOLINGER: Dr. Shambaugh mentioned that potassium iodide in his case had some influence on the tumor. I have at present a patient at the Alexian Brothers' Hospital who was admitted with two swellings quite deep in the external auditory canal. One swelling was posterior and the other was situated at the lower wall and covered a large part of the membrane. I employed the usual treatment which I use in these cases, putting in a tampon of iodoform, expecting that the swelling would simply disappear, because I thought it was a furuncle. The pain disappeared, but the swellings remained, or have only diminished slightly in size. The other day I pressed on it, and it had the distinct feel of rubber under a probe. This made me think of the probability that this tumor is a gumma. I gave orders to have the man examined very carefully. Chancre and syphilis were admitted; and, under the influence of iodide, these tumors or swellings have gradually decreased in size.

DR. JOSEPH C. BECK: I should like to ask Dr. Shambaugh how large a dose of iodide of potassium was given in his case?

DR. SHAMBAUGH: The dose was increased until she was taking about 60 minims two or three times a day. She kept that up for five or six weeks.

DR. BECK: That disproves the remarks of the previous speaker so far as anti-syphilitic treatment is concerned.

At a recent meeting of the Chicago Medical Society I presented a case of angio-endothelioma of the middle ear. This case presented very much the appearance, when I first saw her, of Dr. Shambaugh's case which he has exhibited this evening. It is a

bleeding tumor, and as none of the growth has been removed, one cannot say what the nature of it is. The tumor, however, is of a suspicious nature.

In one part of the history of his case, Dr. Shambaugh speaks of furunculosis, and he refers to the influence exerted by iodide of potassium on it. It is possible there is a small necrosis at the bottom of the granuloma that is present in this case which gives the appearance that there is granulation underneath the layer of epidermis, and doubtless on the outside; that is, the surface that points to the posterior part of the canal looks like a granulation that is protruding. I believe it is simply a case of granuloma leading from a small fistula, such as we see in the superior part of the canal. I would suggest that this growth be thoroughly removed and the necrotic area exposed, and if there is a little plate of bone there to remove that through the external auditory canal.

DR. SHAMBAUGH: Would you expect that sort of fistula in the absence of any middle ear disease?

DR. BECK: Yes, sir. These are the cases of suppuration without perforation of the tympanic cavity.

Dr. Allport, of this city, reported three such cases four or five years ago, of suppuration without perforation, and of finding a fistula in the upper posterior part of the canal.

DR. SHAMBAUGH: In my case it comes from the anterior part of the canal.

DR. BECK: This may be necrosis following deep pustular formation, or ordinary furunculosis.

DR. WILLIAM L. BALLENGER: I had just written on a slip of paper to Dr. Shambaugh practically the same that Dr. Beck said. I think we have here a periostitis which was probably secondary to furunculosis; that is, there is necrosis, granulations, and bleeding. It occurred to me that this is a possible diagnosis, and that the pouching of the tumor-like mass was due to the presence of retained fluids, and the granulations.

DR. SHAMBAUGH (closing the discussion): In regard to the suggestion offered by Dr. Beck that the condition is the result of a localized disease of the bony wall of the external meatus resulting in the accumulation of granulations and pus under the skin of the external meatus, I would say that the swelling occurs from the anterior superior wall of the external part of the meatus and not from the upper posterior wall, where we would find it in case a localized disease of the bone had occurred as the result of infection in a mastoid cell. Again the condition has been under ob-

servation for five years, and during this time there has been no change in the appearance of the swelling, a condition hardly to be expected if we had a localized pus infection as the doctor assumed. The presence of normal skin covering the swelling which presents a smooth surface also argues against this hypothesis.

Histological Preparations of the Normal Organ of Corti.

DR. GEO. E. SHAMBAUGH gave this demonstration.

Diagnosis and Pathology of Nerve Deafness. By J. HOLINGER, M.D.

Case of Acute Bilateral Middle Ear Suppuration Following an Intranasal Operation, and Resulting in Death from Pyemia.

By OTTO J. STEIN, M.D. (*Published in full in this issue of THE LARYNGOSCOPE, page 63.*)

DISCUSSION.

DR. WILLIAM L. BALLENGER: I do not think the essayist raised the question of the possible source of infection being by way of the labyrinth. It would seem to me, owing to the intense deafness in this case, that infection might have occurred by that route.

DR. STEIN: The physician who performed the nasal operation told me that the woman had some deafness, but could hear pretty well about the time he operated, but there was a time when she did not hear well. What the degree of deafness was I do not know, but evidently it was nothing like the deafness which existed at the time I first saw her, because at that time she could not hear anything.

DR. W. E. CASSELBERRY: Can you give us some details in regard to the intranasal operation?

DR. STEIN: I understand that this physician removed a posterior hypertrophy of the turbinate on the right side two weeks before the last operation. Then she returned and he removed a posterior hypertrophy from the left inferior turbinate, and he said it was several days before any ear symptoms arose, although the family thought that it was only two days.

DR. CASSELBERRY: How did he remove the hypertrophy?

DR. STEIN: With a snare.

DR. CASSELBERRY: Did she have any suppurative condition of the sinus?

DR. STEIN: Not to my knowledge.

DR. CASSELBERRY: Many of us have had the misfortune to observe cases of acute otitis media following nasal operations; in

fact it must be recognized as an occasional unavoidable consequence, although it is not clear that it really was due to the nasal operation in this particular case. But supposing it was, what then?

Two questions arise. First, what can we do in connection with our nasal operations to prevent such accidents; what amount of intranasal antiseptic effort should be made preliminary to operating? Painstaking laboratory researches have taught us that the deeper recesses of the nose harbor but few pathogenic organisms, provided there is no acute inflammatory or chronic suppurative disease in progress. Strongly antiseptic fluids are irritating to the nostrils and themselves provoke a reaction which favors infection. Should we then spray and douche, with actively antiseptic solutions in preparation for ordinary intranasal operations? Such is not my custom in this class of cases. Instead, I rely upon gentle cleansing, using a mildly antiseptic alkaline spray which is not bactericidal, but simply cleansing. Resorcin is added to the cocaine anesthetizing pack as an additional mildly antiseptic measure, but I regard the irritation which is established in the nostrils by strenuous efforts at sterilization preceding operations as more detrimental than beneficial to the patient. This, however, is only my own personal experience, and I would be glad to know what others are doing in this direction.

Secondly, having adopted the best preventive measures, should we or should we not then proceed and advise patients to undergo intranasal operation and take the remaining risk? There is more or less risk in everything, in every minor surgical operation, and in every walk of life. Thus we should put it clearly before the patients when they ask the question whether there is any risk attending the operation. They should be informed that they are justified in taking this modicum of risk for the sake of the benefits which are to accrue to them from the intranasal operation.

In the case cited by Dr. Stein, a proper operation was performed, as the patient was suffering from posterior hypertrophy of the turbinated bodies. These were snarcd off at an interval of a week. It is an operation that is frequently needed to prevent even recurrent acute otitis as well as chronic inflammation and deafness.

I feel that these remarks are due, in order that no unjust opprobrium may be thrown upon nasal surgery, although as before said it is not clear that the reported fatality was anything more than a coincidental sequence rather than a consequence of the nasal operation.

DR. GEORGE E. SHAMBAUGH: One of the most interesting points in the case that has just been reported is the question of how the death of the patient was caused. If we assume that the fatal termination was the result of a complication of the suppurative otitis media, and it is not at all certain that this was the case, what was the route by which the general infection took place? There was nothing in the condition found in the mastoid cells to indicate that the infection was from extension through this area. The finding of pus in pneumatic spaces of the mastoid process is quite the usual condition in cases of acute suppurative otitis media without any external evidence of mastoid involvement such as tenderness or swelling over the mastoid, just as was found in this case. Mastoid disease, as we recognize it, with swelling and tenderness over the process, is a condition brought about by a retention of pus in the pneumatic spaces with the resulting softening of the bone tissue itself. In this case, as I understand from the report, there was never any indication that the mastoid was thus diseased, either in the symptoms over the mastoid or in the condition disclosed on opening the cells. The cells were filled with pus, but the bone was hard and glistening, and nowhere was there any evidence of retention or softening of the bone. I think it is safe to say that in all probability the condition found in the mastoid was not such as we should expect might lead to a fatal complication.

There was a symptom in the ear referred to by Dr. Ballenger, which points to a possible route for the general infection from the otitis media. This symptom was the spread of the infection to the labyrinth. The degree of deafness described in the report could only be produced by an involvement of the inner ear. It could not have been produced by the middle ear disease alone.

The patient heard fairly well before the ear disease developed so that it is positive that the labyrinthine involvement occurred during the course of the acute suppurative otitis media. An extension of the suppuration to the cavities of the inner ear is the logical conclusion to draw. With this complication present, the general infection could occur from the labyrinthine in several ways, though extension along the internal meatus or along the Aquæductus vestibuli or Aquæductus cochleæ, or along the veins leaving the inner ear.

DR. G. W. BOOT (Evanston): I would like to say that the operation might have had no direct connection with the fatal result in Dr. Stein's case.

About a year ago I was called by a physician in Evanston to see his son, a boy of about 12 years, whom he suspected of having diphtheria. The boy had a false membrane covering the fauces and pharynx and had every appearance of having diphtheria except that there was a great deal of edema of the pillars of the fauces and of the soft palate. Three thousand units of antitoxin were given at once. When I examined the culture next morning I was surprised to find practically a pure culture of the pneumococcus and no diphtheria bacilli. Several smears and cultures taken afterwards showed the pneumococcus to be the cause of the infection. Two days later the boy died without evidences of pneumonia and apparently of a pneumococcus infection of the throat alone.

Three or four months ago I had occasion to treat a case of cerebro-spinal meningitis without discoverable local source of infection. I made a lumbar puncture and found the pneumococcus as the sole cause of the disease. The boy had been having a slight cold before coming down with meningitis.

If the pneumococcus could cause death in these two cases I would suggest that it might have caused the infection in Dr. Stein's case, that the infection of the labyrinth was probably through the circulation and not from the middle ear or mastoid, and that it is possible that the general infection may have been coincident with the operation rather than a result of it.

DR. STEIN (closing the discussion): The case I have reported without question has several intensely interesting points connected with it, at least to me. One very interesting point to us as Rhinologists is the possibility of aural infection from an intranasal operation. This point I have not attempted in any way to show in this case. I simply pointed out in the title of my paper that the ear trouble followed immediately upon the intranasal operation, but whether that was the indirect cause of death or not, we do not know. Of course, to the lay mind, that possibly may appear as a positive factor, and we know that aural affections do arise following such intranasal operations, and therefore there is a possibility that such an operation might have been the exciting cause in this case. But the microscopical findings, and the examination of the pus, do not bear out such a conclusion. With the finding of diplococci exclusively, it does not seem reasonable to suppose that they would be sufficient to cause this high degree of sepsis which the patient had, although later on we did find the staphylococcus, but as to finding the streptococcus it is rather doubtful. I look

upon that finding as rather hazy, because it was never satisfactory to me.

The most interesting feature was, where did this infection enter the circulation? Of course, we know, as I tried to point out in the paper, that the commonest avenue is by bone necrosis to the neighboring sinuses of the middle ear, and I thought I did a most thorough operation in exposing the sinus on both sides, in order to discover such an avenue of infection; but it is possible I might not have gone far enough. That has been shown in the work of other operators, and it may be I missed the point of entrance. The possibility of pus entering the brain by way of the internal ear or labyrinth, although thought of by myself and others, is not well established, when we consider that there was nothing pointing toward it. There were no intracranial symptoms whatsoever. I mean by this that there were no symptoms of cerebral or cerebellar involvement. Pus entering the cranial cavity by way of the internal ear, of course, usually passes through the internal auditory meatus into the cerebellar cavity, and we should think a collection of pus there, sufficient to cause death, in the form of an abscess, would have produced some symptoms of brain abscess. The patient never had any subnormal temperature, slow pulse, vomiting, convulsion, or anything which would point to a cerebellar disease. There was absolutely no paralysis. There was no degree of excitation of any muscle of the body. There was no change in the pupils, as both of them responded accurately to light. In short, there was nothing to center a diagnosis on any intracranial complication. We found no necrosis whatsoever in the entire mastoid, and I believe it was as thoroughly open as it could have been. I do not think the absorption could have taken place at that point, but it might have done so through the antrum and middle ear cavity, which were markedly inflamed.

SELECTED ABSTRACTS.

Cauterization of the Nasal Mucosa and the Paroxysmal Neuroses.

—FRANCIS HARE (Brisbane)—*Austral. Med. Gaz.*, Melbourne, May 20, 1904.

Considering its source, this paper contains statements sufficiently startling to restore (if they prove correct), a good deal of the old time prestige of the cautery as used in the nasal fossa.

Hare states that: "We are indebted to Dr. Alex. Francis, late of Brisbane, for what seems to me, the most important of the advances which have been made in the practical therapeutics of asthma." Francis thus described his technique:

"After painting one side of the septum nasi with a few drops of solution of cocaine and resorcin on a pledget of cotton wool attached to a probe, I draw a line with a galvano-cautery point from a spot opposite to the middle turbinated body, forwards and slightly downwards for a distance of rather less than half an inch. In about one week's time I repeat the operation on the other side, and afterwards do it on alternate sides at intervals of ten days or a fortnight, as occasion requires. On each occasion I select a fresh spot to cauterize."

Hare goes on to state that the results of this practice, including cases treated by Dr. W. N. Robertson of Brisbane, are as follows:

Complete relief.....	313 cases.
Great improvement.....	143 cases.
Slight or temporary improvement.....	40 cases.
No improvement.....	24 cases.

Hare remarks that undoubtedly the first sentiment these figures tend to arouse is one of scepticism, but that those medical men who are personally acquainted with Dr. Francis, more especially those who have lived and worked in the same city, and who have seen and followed up many of his cases, would not, he thought, hesitate to accept his general results. The full rationale of the result is obscure. Francis soon found himself forced to abandon the view that the cautery destroys a sensory irritation in the nose which is the starting point of the reflex action, "because among other abundant and convincing evidence, as a rule, the quickest and most satisfactory results were obtained in cases where the nose was apparently

normal." He considers that "asthma depends absolutely upon an unstable condition of the respiratory centre," that "some part of the nasal mucous membrane has a controlling influence upon the respiratory centre," that "the area is situated on the septum nasi;" and that cauterization of this area is capable of restoring the stability of the respiratory centre.

Hare, however, prefers for the present to suppose that cauterization of the septum nasi has a restraining influence upon the "pathological vaso-motor action which constitutes the mechanism of the asthmatic paroxysm. * * * If asthma is a vaso-motor neurosis * * * and constitutes but one member of a long series of vaso-motor neuroses, more or less allied, then * * * cauterization, it seems, should be widely extended as a therapeutic measure."

Hare quotes cases of Dr. W. N. Robertson demonstrating complication of angina pectoris with asthma, both relieved by cauterization of the septum nasi. He also quotes two cases of epilepsy complicated with asthma, in one of which the cauterizations cured both, and in the other much relieved both diseases.

EATON.

Adenoid Vegetation of the Naso-Pharynx in Nursing Children.—

F. MASSEI.—*Rev. Hebd. de Laryngol. etc.*, Oct. 22, 1904.

Adenoid vegetations are present in nursing children more frequently than is usually supposed. The symptoms are difficult and noisy nasal respiration, and there is usually some nasal secretion. In advanced cases, there is marked dyspnoea, laryngeal spasms, disturbed sleep, and restlessness during waking hours. The nutrition is diminished, the skin pale, and the cries are weak and changed in their timbre.

The first development of these cases is hard to fix because it is exceptional that a specialist is consulted, and frequently the little patient succumbs to a progressive inanition; if it survives, it grows with the characteristics of adenoidism. If on the other hand, the proper treatment is followed, the transformation is complete; the mechanical difficulty of respiration ceases, the nutrition improves, the child gains rapidly in weight, and recovers its normal quietness and sleep.

It is sometimes difficult to distinguish these cases from ordinary coryza, and especially from the diphtheritic and syphilitic forms. A physical examination alone is final. At that age, an examination can not be made with the mirror or by means of the finger. Massei employs a metallic sound bent to the proper angle, to the end of

which is attached a piece of absorbent cotton. If this sound is introduced behind the velum palati, the presence of vegetation is shown by a tinge of blood, a light hemorrhage at the end of the cotton. We learn also from this examination, the size of the pharyngeal cavity.

The prognosis in such cases is excellent. If the parents permit surgical intervention, the transformation is complete, the dangers insignificant; the fear of hemorrhage or the fall of the growth into the larynx is hardly to be considered; we should operate with delicacy, promptness and precision.

Anesthesia is not necessary as a rule. The operation may be done by means of a curette and few applications of cocaine. If there are symptoms of suffocation, the head of the little patient should be at once lowered, and if there is much bleeding, the parts may be touched with 1/10 solution of antipyrin or 1/1000 of adrenaline.

SCHEPPEGRELL.

Lingual Goitre.—HENRY R. STORRS (Brookline, Mass.)—*Ann. Surg.*, St. Louis, Sept. 1904.

The author graphically describes this very interesting and unique disease. Only thirty-two cases of this growth have been described, and these are given in curtailed form in the paper under consideration. Excellent illustrations accompany the text. Dr. Storrs reaches the following conclusions:

(1) Lingual Goitre is a tumor at the base of the tongue arising from an accessory thyroid gland which may be found in the course of the development of the thyroglossal duct.

(2) It has all the characteristics of ordinary goitre.

(3) It occurs almost exclusively in women between the age of fifteen and forty.

(4) It grows slowly and may exist for years without causing any annoyance until some unknown cause stimulates its growth and produces symptoms. These are functional and not constitutional, and consist of trouble in swallowing, breathing and speaking, accompanied by frequent hemorrhages.

(5) The tumor is round or ovoid, elastic and covered with a very vascular mucous membrane, and is almost never ulcerated.

(6) Dermoid cyst offers the only difficulty in differential diagnosis; but this is generally yellow, grows rapidly, pits on pressure, and has not the vascularity of goitre.

(7) Operation is the only radical cure. There are two ways of reaching the tumor, namely, through the mouth and through an incision in the suprahyoid region, the former being preferable.

(8) The prognosis is good.

LEDERMAN.

